Missouri Department of Health Surveillance Systems

January 1998

Missouri Department of Health

HEALTH

Missouri Department of Health Surveillance Systems

Information provided by

Center for Health Information Management and Epidemiology

Division of Environmental Health and Communicable Disease Prevention

Division of Chronic Disease Prevention and Health Promotion

Division of Maternal, Child and Family Health

Report prepared by

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Office of Epidemiology

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Introduction

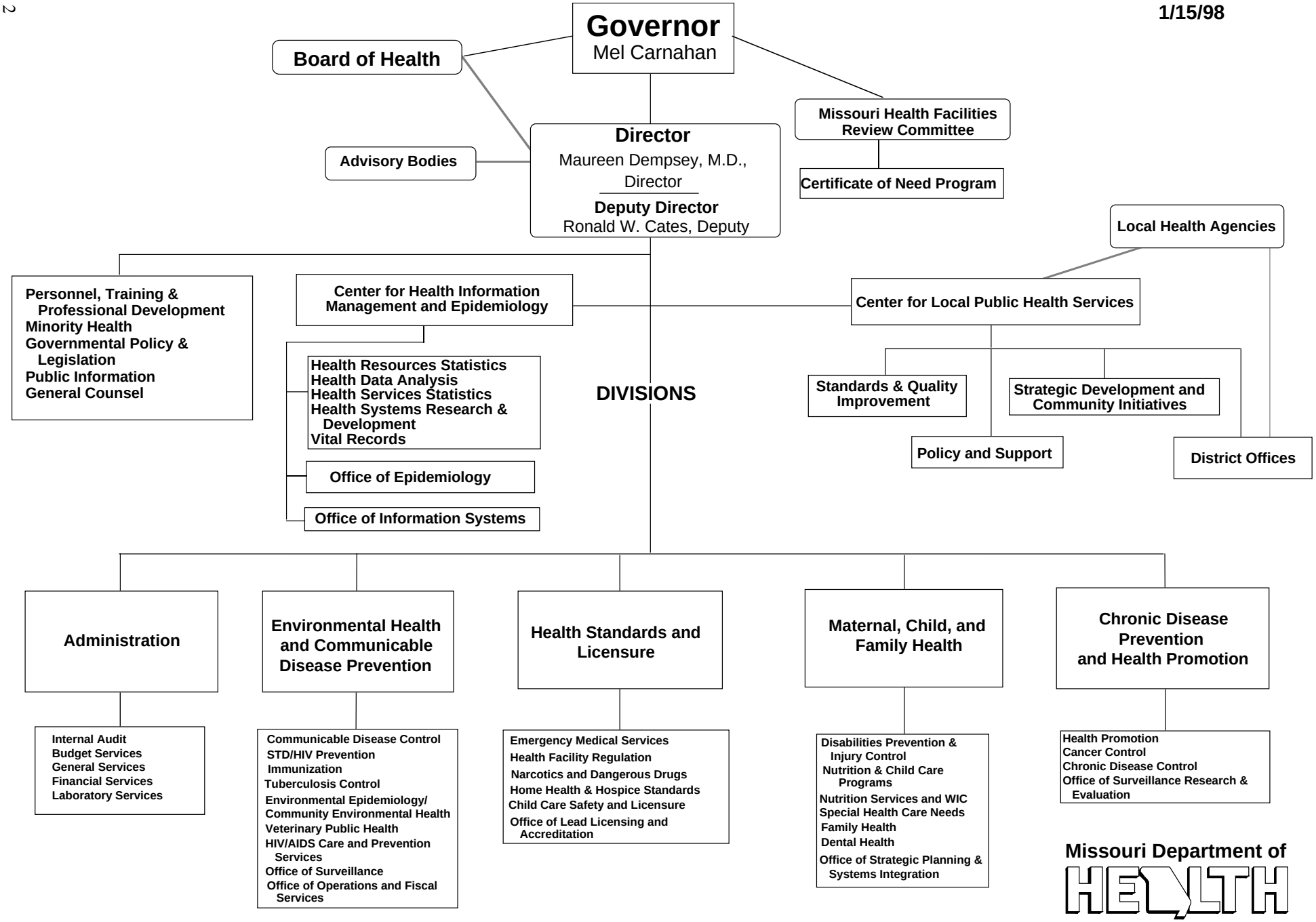
This is the sixth report which reviews the development and activities of the Missouri Center for Health Statistics. Personnel, hardware and software resources of the center are described. Unlike previous reports, however, this publication includes descriptions of all surveillance systems maintained by the Missouri Department of Health. We have also reorganized the report by grouping similar surveillance systems together for ease in locating needed information. Each surveillance system description includes a list of data items available, any relevant policies for release of information, available publications, related published articles, fees for data and who to contact for data or additional information. The source documents related to each surveillance system are provided in the Appendix.

Previous reports[2,3,4,5] traced the development of the Missouri Center for Health Statistics from 1972 through 1993. The center owed much of its growth from 1972–1981 to the development of the Cooperative Health Statistics System by the National Center for Health Statistics. From 1982–1993, the Center continued to expand in activities with new federal sources of revenue and state mandates.

The first report[1] described the events which led to the appointment in 1970 of a task force whose purpose was to develop a state center for health statistics for Missouri. Originally appointed by the Governor's Advisory Council on Comprehensive Health Planning, the task force later became the advisory committee on health statistics for the State Board of Health. The establishment of the task force set into motion the process through which the Missouri Center for Health Statistics has evolved as a unit within the Missouri Department of Health.

[1]Missouri Center for Health Statistics. Missouri Center for Health Statistics: The First Year, 1970–1971.
[2]Missouri Center for Health Statistics, Missouri Center for Health Statistics: Its Purpose and Program, 1978.
[3]Missouri Center for Health Statistics. Missouri Center for Health Statistics: Its Purpose and Program, 1982.
[4]Missouri Center for Health Statistics. Missouri Center for Health Statistics: Its Purpose and Program, 1988.
[5]Missouri Center for Health Statistics. Missouri Center for Health Statistics: Its Purpose and Program, 1994.

1/15/98


Governor
Mel Carnahan
Board of Health
Director
Maureen Dempsey, M.D., Director
Deputy Director
Ronald W. Cates, Deputy
Advisory Bodies
Missouri Health Facilities Review Committee
Certificate of Need Program
Local Health Agencies
Personnel, Training & Professional Development
Minority Health
Governmental Policy & Legislation
Public Information
General Counsel
Center for Health Information Management and Epidemiology
Center for Local Public Health Services
Health Resources Statistics
Health Data Analysis
Health Services Statistics
Health Systems Research & Development
Vital Records
Office of Epidemiology
Office of Information Systems
DIVISIONS
Standards & Quality Improvement
Strategic Development and Community Initiatives
Policy and Support
District Offices
Administration
Environmental Health and Communicable Disease Prevention
Health Standards and Licensure
Maternal, Child, and Family Health
Chronic Disease Prevention and Health Promotion
Internal Audit
Budget Services
General Services
Financial Services
Laboratory Services
Communicable Disease Control
STD/HIV Prevention
Immunization
Tuberculosis Control
Environmental Epidemiology/ Community Environmental Health
Veterinary Public Health
HIV/AIDS Care and Prevention Services
Office of Surveillance
Office of Operations and Fiscal Services
Emergency Medical Services
Health Facility Regulation
Narcotics and Dangerous Drugs
Home Health & Hospice Standards
Child Care Safety and Licensure
Office of Lead Licensing and Accreditation
Disabilities Prevention & Injury Control
Nutrition & Child Care Programs
Nutrition Services and WIC
Special Health Care Needs
Family Health
Dental Health
Office of Strategic Planning & Systems Integration
Health Promotion
Cancer Control
Chronic Disease Control
Office of Surveillance Research & Evaluation
Missouri Department of
HEALTH

Center for Health Information Management and Epidemiology (CHIME)

Mission

The mission of the Center for Health Information and Management is to promote better understanding of the health of Missouri's population and those factors which influence it, in order to improve public health policies and programs.

Vision

Comprehensive, readily accessible health information and services provided by the Center for Health Information Management and Epidemiology will be used to improve the health of Missouri's population.

Values

We in the Center for Health Information Management and Epidemiology value:

- cooperation, dependability and respect in our relationships,
- responsible stewardship of public health information,
- accurate, appropriate and timely information and
- flexibility and adaptation to change.

Missouri Center for Health Statistics

The Missouri Center for Health Statistics is located within the Center for Health Information Management and Epidemiology of the Missouri Department of Health. The Center is organized into four bureaus: Health Resources Statistics, Health Data Analysis, Health Services Statistics and Health Systems Research and Development. See organizational chart located on page 2.

In FY98, the Missouri Center for Health Statistics budget totaled over $1,765,564. The Center currently employs 31 persons—24 professional and 7 clerical.

The Bureau of Health Resources Statistics collects, analyzes and publishes information pertaining to health manpower, facilities, hospital inpatients and outpatients, procedure charges, ambulatory surgical center patients and hospital finances.

The Bureau of Health Data Analysis collects, analyzes, and publishes vital statistics information, is responsible for a birth defect registry, consults with the staff of the maternal and child health program as well as the staff of the environmental health program and develops population estimates.

The Bureau of Health Services Statistics is responsible for the Emergency Medical Services data, Head and Spinal Cord Injury/Trauma Registry, Census of Fatal Occupational Injuries and for providing statistical consultation to several Department of Health programs.

The Bureau of Health Systems Research and Development collects, analyzes and publishes data on access to the health care system, quality of health services and uninsured Missourians. The bureau also assists communities, health facilities and individuals to improve primary health care services by determining health professional shortage areas, recruiting and placing health professionals in shortage areas and coordinating physician and nursing student loan and loan repayment programs. The bureau is also responsible for the development and maintenance of the Department of Health website and the data warehouse.

The State Center operates on six IBM RS/6000 servers, has Windows 95 microcomputers for each research analyst and support staff, and has access to the State Data Center mainframe through a Novell Netware SAA server. All of the Windows 95 microcomputers are capable of file transfer to and from the State Data Center mainframe. The IBM RS/6000(s) are part of the Department of Health TCP/IP network. All staff have access to the RS/6000 servers through Windows 95 microcomputers through terminal emulation by the Department of Health network.

Desktop publishing and correspondence is also accomplished through the use of Windows 95 microcomputers providing word processing, spreadsheet, and publishing software packages.

Printouts are available through various laser printers on the Department of Health network, and through the State Data Center mainframe computer network.

Data are available in many formats and magnetic media. Nine-track tapes or 3480 cartridges are available, along with 4mm and 8mm tapes. Diskettes, 360K and 1.2 meg–5 1/4 inch diskettes or 720K and 1.44 meg–3 1/2 inch diskettes are available in a Dbase or ASCII format.

Missouri Center for Health Statistics (continued)

PURPOSE:

The purpose of the Missouri Center for Health Statistics is to collect, analyze and distribute health related information which promotes the better understanding of health status, problems and needs in Missouri, and facilitates the development and evaluation of health policies, programs and services.

In fulfilling its purpose, the Missouri Center for Health Statistics performs five functions:

Data Collection

The Missouri Center for Health Statistics is responsible for collecting population-based data on a wide variety of health related topics.

Data Accessibiliy

The health data collected by the Missouri Center for Health Statistics are made available, along with analytical and technical assistance, to agencies or individuals upon request. Requests for data can be answered from the annual publication series of the Missouri Center for Health Statistics, unpublished data or from computer data tapes.

Data Analysis

Descriptive analytic reports are published and distributed by the Missouri Center for Health Statistics on a regular basis.

Data Consultation

The Missouri Center for Health Statistics provides statistical consultation and program evaluation assistance to programs administered by the Department of Health and to other users of health data when resources allow.

Data Coordination

The Missouri Center for Health Statistics coordinates the health-related data systems maintained within the state to increase the comparability, completeness, accuracy and timeliness of the data and to reduce duplication in the data systems.

Missouri Center for Health Statistics (continued)

SIGNIFICANT EVENTS:

A chronology of significant events during 1972–1993 in the development of the Missouri Center for Health Statistics can be found in the previous editions of this publication. The following are significant events from 1993–1997.*

1993 **December**—The first issue of *Buyer's Guide: Outpatient Procedures* was published. This guide provides information on the cost of selected outpatient procedures.

1994 **April**—A second set of buyer's guides, *Buyer's Guide: Obstetrical Services*, was published. This guide provides information on facility charges, program and services available to mothers and infants, patient outcomes, patient satisfaction, staffing and other characteristics of the delivery system at each obstetrical facility in the state.

November—Expansion of Sexual Assault Forensic Examination (SAFE) network to include children who may have been physically abused.

1996 **June**—Received funding through Crash Outcome Data Evaluation System (CODES) peer-to-peer technical assistance cooperative agreement to continue development of CODES data in Missouri and expand the use of CODES data for injury reduction and prevention.

July—Missouri Center for Health Statistics relocated to the Center of Health Information Management and Epidemiology under the Director's Office of the Missouri Department of Health.

1997 **January**—The Missouri Center for Health Statistics takes over responsibility for analysis of data collected through the Sexual Assault Forensic Examination (SAFE) network.

August—Received funding for Traumatic Brain Injury Surveillance Program which will increase the reporting of brain-injury cases through linkage of the Head and Spinal Cord Injury/Trauma Registry to the Patient Abstract System (hospital emergency room and inpatient) and mortality records.

October—Another set of buyers guides, *Buyer's Guide: Hospital Emergency Services*, was published. This guide provides information on emergency department characteristics, staffing, support services, waiting times, patient satisfaction and other characteristics of the emergency services department at each hospital offering such services.

*Further information on the above events may be found in other portions of this publication.

Missouri Center for Health Statistics (continued)

POLICY AND PROCEDURE FOR RELEASE OF VITAL RECORDS INFORMATION:

Data on individual cases from birth and death records can be obtained through three methods:

1. Copies of certificates
2. Computer tapes containing individual records
3. Computer printouts listing information, in addition to name and date of birth or death.

Agencies or individuals seeking such information must demonstrate a concern for confidentiality protections and a legitimate research or administrative need. Firms requesting identifying information for commercial purposes shall not be considered to have a legitimate need.

Application from Agency

Any request for individual case data shall be made to the Director of the Center for Health Information Management and Epidemiology. After receipt of the request, a protocol form with accompanying letter will be sent to the requesting agency to be completed. A copy of the protocol form and letter can be found on pages 9–10. The protocol should:

Outline Proposed Use—This should be a summary of the research protocol or the administrative purpose for which the data will be used. If a computer tape is being requested, the agency should include the tape specifications needed for its computer installation.

Describe Confidentiality Protections—The applying agency should give assurances that:

1. No other agency or individual will be given access to the individual case data in its unaggregated form. If the data are maintained on computer tapes, proper security measures should be in place to protect against other users accessing the tapes.
2. The data will be properly disposed of once the relevant information has been obtained.
3. No attempts will be made to contact family members or acquaintances of decedents or infants unless written permission has been obtained from the Director of the Center for Health Information Management and Epidemiology.
4. The use of these data will be restricted to the proposed purpose. Any newly conceived uses must be cleared through the Director of the Center for Health Information Management and Epidemiology.

Address Data Requests to:

Garland Land, Director
Center for Health Information Management and Epidemiology
Missouri Department of Health
P.O. Box 570
Jefferson City, MO 65102-0570
Ph: (573) 751-6272
FAX: (574) 536-4102

Review Process

The Director of the Center for Information Management and Epidemiology will review the protocol. This review will be based on three factors:

1. Merit of proposal
2. Adequacy of confidentiality measures
3. Availability of resources to fill request

If the request is denied, the requesting agency will be notified in writing of the reasons for rejection. If insufficient material is presented to make a decision, the director may require additional information from the requesting agency to clarify the application.

POLICY AND PROCEDURE FOR RELEASE OF VITAL RECORDS INFORMATION (continued):

Transmission of Data to Requesting Agency

If the request is approved, the manner of transmission will depend on the type of data to be received. The three types are:

Vital Record Certificates—There is an assessed charge of $10 per certificate. When the requesting agency is informed of the number of certificates involved, a check for the appropriate amount should be made payable to the "Missouri Department of Health" and sent to the Chief of the Bureau of Vital Records. The certificates will be forwarded as soon as possible after receipt of the check. This $10 per certificate charge does not apply to state agencies, welfare agencies in other states, veterans' administration, hospitals financed by public funds, prosecuting attorneys of Missouri who require the records in cases of crimes against the people, and other state vital records offices.

Computer Tapes—The tape or tapes will be forwarded to the requesting agency as soon as possible after their application has been approved. The requesting agency must then copy the tapes and return the originals to the Missouri Center for Health Statistics. See Fee Policy on pages 11–13 for appropriate charges.

Computer Printout Lists—These lists will be forwarded to the requesting agency as soon as possible after the application has been approved. See Fee Policy on pages 11–13 for appropriate charges.

For agencies wishing to receive data on a routine basis, such a provision can be incorporated into the original letter of agreement. This will eliminate the necessity of periodically repeating the request process.

Missouri Department of
HEALTH

Mel Carnahan
Governor
Maureen E. Dempsey, M.D.
Director

P.O. Box 570, Jefferson City, MO 65102-0570 • 573-751-6400 • FAX 573-751-6010

Dear Researcher:

Your request for a copy(s) of a vital record(s) for research purposes has been received. To process your application, we need to have the attached protocol form completed. If you sent payment with your original application, we are sending you a fee receipt. Please return the fee receipt with the completed protocol. Your protocol will be evaluated on the merit of the proposed research and the adequacy of the confidentiality measures to be taken.

If your application is rejected, the reasons for the rejection will be sent to you and any money to be refunded will be sent in 30–60 days. If your protocol is accepted, copies of the records requested and a copy of your approved protocol with the approval number will be sent to you. If you need other copies of records at a later time for the approved project, please include with future applications the number and the approved protocol so that an additional protocol is not required. This number is only valid for the current research project. A request for service for a new project must be accompanied by a separate protocol.

The request will be approved only if adequate assurances are provided to protect the confidentiality of the records requested. This includes limiting access to the records only to members of the research staff, not releasing the records to other agencies, publishing data so individuals cannot be identified, destroying the records upon completion of the study, and not contacting family members or acquaintances of decedents or infants without written permission from the Director of the Center for Health Information Management and Epidemiology.

If your research protocol is approved, the records will be provided on the basis of your protocol and the provisions outlined in this letter. If the project changes in any manner which would affect the basis of this approval, then those changes need to be sent to the Director of the Center for Health Information Management and Epidemiology within the Department of Health.

Sincerely,

Garland Land
Director
Center for Health Information Management and Epidemiology

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PROTOCOL FOR
RESEARCH USING MISSOURI VITAL RECORDS

APPROVAL NUMBER _____

Describe purpose of the study:

Describe study methodology and intended use of the data:

How long will the study last? (Approval number will be valid only for this time period.)

Describe confidentiality measures to be taken:

Will any agency besides the requesting agency have access to the vital records?

No _____

Yes ____ If yes, indicate what agency and attach a separate letter from the agency describing the confidentiality measures which they can assure. Any federal agency must provide legal counsel's opinion on the applicability of the Freedom of Information Law as pertaining to the vital records requested.

What disposition will be made of the records following the completion of the study?

Principal Investigator's Signature _____ Date _____

Address _____

_____

_____

Missouri Center for Health Statistics (continued)

FEE POLICY:

There is a charge for most of the products and services provided by the Missouri Center for Health Statistics.

Charges and fees may be waived by the center director when the action is deemed to be of substantial value to the Department of Health and/or in the best interest of public health. State and local health departments, other Missouri state and local government agencies, media/media students and legislators will normally not be charged for special data requests.

Fees for extensive requests may be negotiated at the discretion of the center director.

An additional $2.50 for shipping and handling will be added for most requests, unless otherwise noted.

Charges to MasterCard, VISA, American Express and Discover are acceptable and will include a $4.95 service charge per $200 transaction.

At the discretion of the research analyst, prepayment will be required. When payment is received, an invoice will be prepared, marked paid and mailed with the information requested.

When prepayment is not required, an invoice showing the amount due will be prepared and mailed with the information requested. On the first of every month, a second notice letter will be sent to accounts unpaid for 60 days. Accounts six months overdue will be forwarded to the Department of Health's legal counsel for action.

Copy Charges: 25 cents per page for data requests requiring copying of existing printed information

FAX Charges: $2.00 for first page plus $1.00 for each additional page in addition to usual cost of information.

Mailing Labels:
$45 for first 1,000 labels
$60 for labels up to 2,000
$30 for each additional 1,000 labels (up to 5,000)
$25 for each additional 1,000 labels (up to 10,000)
$20 for each additional 1,000 labels (up to 25,000)
$15 for each additional 1,000 labels (up to 50,000)
$10 for each additional 1,000 labels over 50,000

Duplicate sets of mailing labels may be ordered at the same time for half the cost of the original set.

A line listing will be included with mailing labels at no additional cost.

Manpower Lists: 50 cents per page, except that the total cost per request will not exceed the standard cost of a special run.

A statewide professional group may request up to two complimentary lists per year.

Computer Printout:
$25 for the first 1,000 records or portion thereof
$20 for each additional 1,000 names (up to 10,000)
$15 for each additional 1,000 names (up to 25,000)
$10 for each additional 1,000 names (up to 50,000)
$5 for each additional 1,000 names over 50,000

Missouri Center for Health Statistics (continued)

FEE POLICY (continued):

Tapes/Cartridges: $250 minimum (covers up to 7,000 names)
Over that amount, charge will be the cost of equivalent list plus $100.

Diskettes: $100 per diskette

Data Requests: Data requests requiring programming and special computer run:
$30 (minimum) per hour of research analyst time plus file access charge

Data requests not requiring computer run:

Less than one hour of personnel time	No Charge
One hour or more of personnel time	$30 per hour

Fees for monthly, quarterly, semi-annual or annual data may be negotiated at the discretion of the research analyst.

File Access Charges:

Ambulance Runs	50.00
Ambulance Service Licensed Personnel	5.00
Ambulance Services	5.00
Birth/Defect Registry	85.00
Birth/Infant Death Merged File	5.00
Birth/Manpower	5.00
Birth/Neonatal Intensive Care Unit File	26.00
Births	21.00
Census	21.00
Census of Fatal Occupational Injuries	50.00
Child Fatality Review Program	70.00
Chiropractors	7.00
Deaths	21.00
Dental Health	5.00
Dental Hygienists	9.00
Dentists	9.00
Divorces	11.00
Drug Prevalence Survey Data	5.00
Head and Spinal Cord Injury/Trauma Registry	70.00
Health Care Procedure Charges	5.00
Hospitals	5.00
Hospital Financial	10.00
Hospital Revenues	10.00
Induced Termination of Pregnancies	5.00
Licensed Practical Nurses	11.00
Licensed Professional Counselors	7.00
Marriages	21.00
Multi-Data Source 1980–84 Fatality File	85.00
Multi-Year Hospital File	5.00
Nursing Homes/Residental Care Facilities	5.00
Occupational Therapists and Certified Occupational Therapy Assistants	7.00
Optometrists	5.00
Patient Abstract	
Inpatient	85.00
Outpatient	170.00

Missouri Center for Health Statistics (continued)

FEE POLICY (continued):

File Access Charges (continued):

Pharmacists	9.00
Physical Therapists	7.00
Physicians	$ 21.00
Podiatrists	5.00
Psychologists	7.00
Registered Nurses	21.00
Respiratory Therapists	7.00
Social Workers	7.00
Speech Pathologists & Clinical Audiologists	5.00
Veterinarians	7.00
WIC/Medicaid Birth	85.00

Missouri Center for Health Statistics (continued)

AVAILABLE PUBLICATIONS:

State and local health departments, other Missouri state and local government agencies, media/media students and legislators may receive one complimentary copy of any or all of the following publications by requesting to be placed on the appropriate mailing list. Single-copy orders from these organizations will be honored at no charge; multiple-copy orders will be billed at the stated prices.

An additional $2.50 for shipping and handling will be added unless otherwise noted.

Charges to MasterCard, VISA, American Express and Discover are acceptable and will include a $4.95 service charge per $200 transaction.

Requests should be directed to: Center for Health Information Management and Epidemiology
Missouri Department of Health
P.O. Box 570
Jefferson City, MO 65102-0570
Ph: (573) 751-6272
FAX: (573) 526-4102.

Publication Number	Report Title and Summary	Date	Publication Cost
1.7	**Missouri Department of Health Surveillance Systems**	January 1998	No Charge
2.21	**Missouri Health Manpower, 1986: Part II**	February 1988	$15.00
2.22	**Missouri Health Manpower, 1987**	April 1988	$15.00
2.23	**Missouri Health Manpower, 1988: Part I**	February 1989	$15.00
2.24	**Missouri Health Manpower, 1988 Part II**	February 1990	$15.00
2.25	**Missouri Health Manpower, 1989**	September 1990	$15.00
2.26	**Missouri Health Manpower, 1990: Part I**	April 1991	$15.00
2.27	**Missouri Health Manpower, 1990: Part II**	November 1991	$15.00
2.28	**Missouri Health Manpower, 1991**	May 1992	$15.00
2.29	**Missouri Health Manpower, 1992**	August 1995	$15.00
2.30	**Missouri Health Manpower, 1993**	December 1995	$15.00
3.8	**Missouri Hospital Profiles 1980**	April 1981	$25.00
3.13	**Missouri Hospital Profiles 1981**	May 1982	$25.00
3.15	**Missouri Hospital Profiles 1982**	May 1983	$25.00
3.17	**Missouri Hospital Profiles 1983**	May 1984	$25.00
3.19	**Missouri Hospital Profiles 1984**	October 1985	$25.00
3.21	**Missouri Hospital Profiles 1985**	July 1986	$25.00
3.24	**Missouri Hospital Profiles 1986**	July 1987	$25.00
3.27	**Missouri Hospital Profiles 1987**	August 1988	$25.00
3.30	**Missouri Hospital Profiles 1988**	August 1989	$25.00
3.33	**Missouri Hospital Profiles 1989**	July 1990	$25.00
3.36	**Missouri Hospital Profiles 1990**	August 1991	$25.00
3.39	**Missouri Hospital Profiles 1991**	June 1992	$25.00
3.41	**Missouri Hospital Profiles 1992**	July 1993	$25.00
3.43	**Missouri Hospital Profiles 1993**	June 1994	$25.00
3.45	**Missouri Hospital Profiles 1994**	June 1995	$25.00
3.47	**Missouri Hospital Profiles 1995**	June 1996	$25.00
3.49	**Missouri Hospital Profiles 1996**	June 1997	$25.00

Missouri Center for Health Statistics (continued)

AVAILABLE PUBLICATIONS (continued):

Publication Number	Report Title and Summary	Date	Publication Cost
3.23	**Missouri Nursing Home and Residential Care Facility Profile 1985**	October 1986	$25.00
3.25	**Missouri Nursing Home and Residential Care Facility Profile 1986**	August 1987	$25.00
3.29	**Missouri Nursing Home and Residential Care Facility Profile 1987**	December 1988	$25.00
3.31	**Missouri Nursing Home and Residential Care Facility Profile 1988**	October 1989	$25.00
3.34	**Missouri Nursing Home and Residential Care Facility Profile 1989**	October 1990	$25.00
3.37	**Missouri Nursing Home and Residential Care Facility Profile 1990**	October 1991	$25.00
3.40	**Missouri Nursing Home and Residential Care Facility Profile 1991**	June 1992	$25.00
3.42	**Missouri Nursing Home and Residential Care Facility Profile 1992**	November 1993	$25.00
3.44	**Missouri Nursing Home and Residential Care Facility Profile 1993**	October 1994	$25.00
3.46	**Missouri Nursing Home and Residential Care Facility Profile 1994**	August 1995	$25.00
3.48	**Missouri Nursing Home and Residential Care Facility Profile 1995**	August 1996	$25.00
3.50	**Missouri Nursing Home and Residential Care Facility Profile 1996**	August 1997	$25.00
6.9	**Missouri Elderly Health Status and Utilization Indicators**	October 1990	$10.00
6.10	**Missouri Healthy People 2000: Consensus Set of CDC Health Status Indicators**	June 1995	$15.00
6.11	**Missouri Maternal and Infant Health Status Indicators**	December 1996	$15.00
7.5	**Missouri Geocode List 1997**	September 1997	No Charge
8.18	**Missouri Population Estimates 1990–1996**	October 1997	$15.00
9.7	**Missouri Ambulance Service Profile**	1995–96	$25.00
	Missouri Hospital Revenues 1985–1990	January 1992	$20.00
16.1	**Missouri Hospital Revenues 1986-1991**	August 1993	$20.00
16.2	**Missouri Hospital Revenues 1988–1993**	January 1995	$20.00
16.3	**Missouri Hospital Revenues 1990–1995**	August 1997	$20.00
	Show Me Buyer's Guide: Outpatient Procedures ('92-'93)	December 1993	
17.1	Kansas City/Northwestern Missouri Region		$3.00*
17.2	St. Louis/Eastern Missouri Region		$3.00*
17.3	Central/Northeastern Missouri Region		$3.00*
17.4	Southeastern Missouri Region		$3.00*
17.5	Southwestern Missouri Region		
	Show Me Buyer's Guide: Outpatient Procedures (1994)	October 1994	
17.6	Kansas City/Northwestern Missouri Region		$3.00*
17.7	St. Louis/Eastern Missouri Region		$3.00*
17.8	Central/Northeastern Missouri Region		$3.00*
17.9	Southeastern Missouri Region		$3.00*
17.10	Southwestern Missouri Region		$3.00*
	Show Me Buyer's Guide: Outpatient Procedures (1995)	August 1995	
17.11	Kansas City/Northwestern Missouri Region		$3.00*
17.12	St. Louis/Eastern Missouri Region		$3.00*
17.13	Central/Northeastern Missouri Region		$3.00*
17.14	Southeastern Missouri Region		$3.00*
17.15	Southwestern Missouri Region		$3.00*

*The $2.50 shipping and handling charge does not apply to this publication.

Missouri Center for Health Statistics (continued)

AVAILABLE PUBLICATIONS (continued):

Publication Number	Report Title and Summary	Date	Publication Cost
	Show Me Buyer's Guide: Outpatient Procedures (1996)	June 1996	
17.16	Kansas City/Northwestern Missouri Region		$3.00*
17.17	St. Louis/Eastern Missouri Region		$3.00*
17.18	Central/Northeastern Missouri Region		$3.00*
17.19	Southeastern Missouri Region		$3.00*
17.20	Southwestern Missouri Region		$3.00*
	Show Me Buyer's Guide: Obstetrical Services	April 1994	
18.1	Kansas City/Northwestern Missouri Region		$3.00*
18.2	St. Louis/Eastern Missouri Region		$3.00*
18.3	Central/Northeastern Missouri Region		$3.00*
18.4	Southeastern Missouri Region		$3.00*
18.5	Southwestern Missouri Region		$3.00*
18.6	Obstetrical Services: Volume II: Technical Report		$10.00*
	Show Me Buyer's Guide: Hospital Emergency Services (1997)	Fall 1997	
18.7	Kansas City/Northwestern Missouri Region		$3.00*
18.8	St. Louis/Eastern Missouri Region		$3.00*
18.9	Central/Northeastern Missouri Region		$3.00*
18.10	Southeastern Missouri Region		$3.00*
18.11	Southwestern Missouri Region		$3.00*
18.12	Hospital Emergency Services: Volume II: Technical Report		$10.00*
19.1	**Head & Spinal Cord Injury Registry Report**	May 1994	$10.00
19.2	**Head & Spinal Cord Injury Registry Report**	July 1997	$10.00
20.1	**Missouri Crash Outcome Data Evaluation System (CODES)**	1993	No Charge
	Missouri Epidemiologist The Missouri Epidemiologist is a regulaly scheduled bi-monthly newsletter published jointly by the Office of Epidemiology, Center for Health Information Management and Epidemiology and the Division of Environmental Health and Communicable Disease Prevention.	Bi-monthly	No Charge
	Missouri Vital Statistics (Annual Report)	1968–present	No Charge
	Missouri Monthly Vital Statistics This monthly report provides provisional data on births, deaths, marriages and dissolutions of marriage. Each issue features a topic of interest on the "Focus" page. An index to "Focus" articles from 1988–1997 can be found on pages 17–18.	Monthly	No Charge

*The $2.50 shipping and handling charge does not apply to this publication.

Missouri Center for Health Statistics (continued)

Index to Monthly Vital Statistics Focus Articles (1988–1997)

Index to Monthly Vital Statistics Focus Articles (continued)

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Marriages and Divorces

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Vol. 31, No. 4 WIC Cost/Benefit Analysis 1994

Other

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Vol. 23, No. 5 Low Birth Weight and Perinatal Death Rates by Age of Mother
Vol. 23, No. 9 Revised Missouri Birth Certificate
Vol. 24, No. 6 Neonatal and Maternal Transfers Among Missouri Resident Births
Vol. 24, No. 9 Weight Gain in Pregnancy
Vol. 24, No.10 Newborn Crownheel Length
Vol. 25, No. 3 Changes in Characteristics of Women Who Smoke During Pregnancy: The Missouri Experience 1978-1988
Vol. 25, No. 8 Demographics Behavioral and Medical Characteristics by Birth Weight
Vol. 25, No.12 Impact of Birth Defects on Infant Mortality and Morbidity
Vol. 27, No. 3 Birth Spacing and Low Birth Weights
Vol. 27, No. 4 Geographic Variation in Low Birth Weight Rates
Vol. 27, No. 5 Cesarean Section Births in Missouri
Vol. 28, No. 3 Preliminary Results from the Very Low Birth Weight Study
Vol. 28, No. 6 Hispanic Pregnancies and Outcomes
Vol. 28, No.11 Factors Associated With Repetition of Low Birth Weight
Vol. 29, No. 3 Surveillance for FAS/FAE
Vol. 29, No. 6 Health Problems and Symptoms on Missouri Maternal and Infant Health Survey
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MOHSAIC (Missouri Health Strategic Architectures and Information Cooperative)

The Missouri Department of Health (DOH) views an integrated information system as critical to preserving and expanding the Missouri public health system. This is reflected by the fact that one of the six major goals of the department's strategic plan is "to improve the identification and understanding of health threats, health status and risk behaviors of Missourians." Under that goal there are five outcomes:

1. Improved reporting of all significant public health diseases and conditions by medical providers, laboratories and public health agencies
2. Increased capacity to describe health status, identify health risks and disseminate information
3. High quality, comprehensive, timely health-related data
4. An integrated public health information system that enhances service delivery and community assessment
5. Ready access to health-related information for DOH employees, the general public, customers, health care providers and other agencies

Based on this belief and recognizing that information is critical to public health, in 1992, DOH embarked on a project to create an integrated public health information system. This system was to include an integrated client record. The first step was to assess all the information systems in DOH, identify what information was lacking, and determine what was required to create this system. A group of high level DOH managers and representatives from the local public health agencies spent three months creating a strategic plan for information systems (ISP). This plan, the Missouri Health Strategic Architectures and Information Cooperative (MOHSAIC) identified all the functions performed by DOH and local public health agencies and the data needed to perform these functions. It also provided the architecture for a statewide information network which could link public and private health care providers electronically.

Much has been accomplished since the creation of the plan. Those accomplishments include: implementation of standards for the purchase of computer hardware, software and network equipment; the development of a wide area network (WAN) which links state and local public health agencies; and the connection of DOH employees to one electronic mail system which supports communications with the local public health agencies and others via Internet.

The remote DOH sites are all linked to the central office via high-speed leased lines to create a seamless department-wide network that serves approximately 975 DOH employees. The various DOH buildings located throughout the state and local public health agencies are all linked together in a Wide Area Network (WAN). Currently, 73 of the 135 local public health agencies are connected to DOH through high speed lines. By December 1998, all local public health agencies will be connected to DOH. Some local public health agencies have satellite sites which are not open frequently enough to justify a dedicated line. These sites will access the network through dial-up lines.

A number of changes have occurred in the Missouri health care delivery system since the creation of the MOHSAIC plan. Medicaid eligibility and Medicaid managed care are expanding. This may provide access to more clients previously served by local public health agencies and overcome some of the previous provider access problems. However, none of these changes in the health care delivery system alleviates the need for a strong public health agency to work with local communities to assess the health status of the population, establish priorities during these turbulent times, develop new innovative interventions and policies and evaluate the old ways of doing things.

The Institute of Medicine report, *The Future of Public Health*, identifies three core functions of public health—assessment, assurance and policy development. Public health information systems must be structured to address these three functions. The assurance function can be strengthened through an integrated transaction information system to assist service delivery. We believe an ideal integrated information system should provide the following functionality: a unique client number; a common registration component for all programs and services; a common scheduling component for all clients and scheduled activities; the ability to capture data on all public health services pertaining to individuals, regulated activities, places, outbreaks, equipment, products, the environment, etc.; ability to create care coordination plans across programmatic lines; and the ability to link public and private providers, particularly Medicaid managed care providers. These are the system requirements for MOHSAIC.

MOHSAIC (continued)

The MOHSAIC integrated transaction system enhances the assurance function by identifying clients that need services, integrating service delivery schedules for families, eliminating redundant data collection, establishing standards for data collection, coordinating care across providers, simplifying provider training to one computer system, and automating previous manual functions.

DOH will redevelop all current transaction information systems into the MOHSAIC integrated transaction system. We have grouped the information needs into ten components: scheduling, inventory, immunization, woman's wellness, surveillance, laboratory, regulated client, care coordination, environment and primary care. To date, scheduling, inventory and the immunization components have been completed and are now operational in 64 local public health agencies. All public providers will be using these components of MOHSAIC by December 31, 1998, and these components will be fully operational for private providers by December 31, 1999. Work is being completed on the woman's wellness and surveillance components which will be piloted by local public health providers in early 1998. As additional components are completed, they will be made available to all current MOHSAIC users as well as additional appropriate system users. It is anticipated that all components of MOHSAIC will be fully operational by December 31, 2001.

One of the primary features of the MOHSAIC transaction system is its link to other state client information systems. MOHSAIC uses the same identification number as most Department of Social Services' programs (Medicaid, AFDC, Food Stamps, etc.). When the user enters a client, the system first checks to see if the client is already in the MOHSAIC database. If the client is not, then the system automatically checks the Social Services' database for the client. If he/she is on the Social Services' database, then the client number is automatically entered into the new MOHSAIC record. If Social Services does not have the number, then the user assigns the client an identification number which is automatically entered in both MOHSAIC and Social Services.

An integrated transaction system is not designed to meet the needs of the other two core functions of public health—assessment and policy development. The MOHSAIC transaction system database structure is not designed for analytical purposes. To meet the assessment and policy development needs, the MOHSAIC transaction data are restructured into a data warehouse. Besides the MOHSAIC transaction data, the MOHSAIC data warehouse is augmented with surveillance data such as births, deaths, hospital patient abstracts, cancer registry, head injury registry, etc. The data are restructured to allow analytic tools to retrieve the data in an aggregated format useful for assessment or policy development purposes.

The purpose of the data warehouse is to provide DOH staff with quick and easy access to department-wide data and pertinent external data to improve policy making and program management. The data warehouse is built on the philosophy that all data in DOH are a resource that should be available to all DOH programs. Each surveillance system and transaction system has a program custodian, but the custodian is not the owner, the department is the owner. By making data easily available across bureaucratic lines, we expect to bring programs together in their assessment functions.

To date, the initial components of the MOHSAIC transaction system have been implemented in over 60 local public health agencies. Staff at these agencies are accessing the central register in Jefferson City to view and input immunization information for their clients. The register was pre-populated with the names of all children born in Missouri from 1994 through the present time. Register data is being used to identify children at risk for vaccine-preventable diseases and to recall them for needed immunizations. These data are also being used to assess the immunization level for children entered by system users.

Completion of the MOHSAIC transaction components and the MOHSAIC data warehouse will support the replacement of all existing DOH data systems. It will allow DOH to improve the identification and understanding of health threats, health status and risk behaviors of Missourians and to share this information with DOH employees, the general public, customers, health care providers and other agencies.

Grants, Contracts and Cooperative Agreements

Grant, contract and cooperative agreement awards are based on factors such as demonstrated expertise, commitment to scientific advancement, data availability and clear understanding of the health related issues. The Missouri Department of Health has clearly demonstrated its strength in each of these areas and consequently has been awarded or became principally involved in numerous projects. These projects have provided both the opportunity to apply our expertise and to share the data resources available at the Department of Health.

Funding Period	Agency	Amount	Project Director	Summary
04/16/82–Ongoing	National Center for Health Statistics	$18,000 per year	W. Schramm	Information to establish, maintain and operate the National Death Index
1983–88	Environmental Protection Agency Superfund/Centers for Disease Control and Prevention	$2,232,527	W. Schramm J. Stockbauer	Missouri Dioxin Studies: 1. examine reproductive outcomes; 2. create a file of 1972–82 Missouri birth defects 3. maintain a central listing of more than 2,000 persons potentially exposed to dioxin in Missouri
03/31/84–12/31/84	Health Care Financing Administration	$30,795	W. Schramm G. Land	Prenatal Care and Its Relationship to Medicaid Costs
09/28/84–09/27/87	National Institute of Child Health and Development/ National Institutes of Health/ Department of Health and Human Services	$70,528	W. Schramm G. Land	Multinational Comparison Study of Birth-Weight-Specific Perinatal Mortality Rates.
01/02/86–10/31/94	National Institute of Child Health and Development	$1,195,477	W. Schramm G. Land	Factors Associated With Premature Births Derived From Vital Statistics Hospital Abstraction Records, also known as “Very Low Birth Weight Study”—This contract creates files from six source documents to examine factors related to the prevention and subsequent health care needs of very low birth weight (under 3 lbs. 5 oz.) infants.
01/01/86–Ongoing	Centers for Disease Control and Prevention, HIV/AIDS Surveillance Branch	$560,000 in 1998	M. Skala	HIV/AIDS Surveillance Cooperative Agreement. Funds are awarded to operate a comprehensive HIV/AIDS surveillance program in Missouri to reduce the spread of HIV and its impact. Core (provider and laboratory reporting) and behavioral surveillance (special research studies) are conducted in Kansas City, St. Louis and outstate Missouri.
10/01/86–09/30/87	Food and Drug Administration	$30,407	R. Renick G. Kilpatrick	Defibrillator use and maintenance investigation
1986–90	Centers for Disease Control and Prevention/ U.S. Department of Agriculture	$800,000	R. Harmon N. Miller J. Stockbauer R. Metzger	The Smoking Cessation in Pregnancy Project included Colorado, Maryland and Missouri data. The goal of this project was to increase smoking cessation during pregnancy among women receiving public prenatal care and WIC services. The cotinine-verified quit rates were not significantly different between intervention and control clinics. Major conclusions: 1. biochemical validation of self-reported quitting is a necessity for evaluation of smoking interventions; and 2. influencing smoking behavior during pregnancy in this population is very difficult.

Grants, Contracts and Cooperative Agreements (continued)

Funding Period	Agency	Amount	Project Director	Summary
1986–89	Centers for Disease Control and Prevention	$59,415	M. Van Tuinen	Behavioral Risk Factor Survey—random telephone survey of Missouri residents regarding prevalence of selected health-related risk factors.
01/01/89–Ongoing	National Center for Health Statistics	$229,141 per year	W. Schramm	Operating activities for Vital Statistics Cooperative Program
06/25/89 Ongoing	Environmental Protection Agency	$165,000	M. Tschetter	State Indoor Radon Grant—Determine the distribution of radon in Missouri and to identify areas in the state that might have the potential for significantly elevated concentrations of indoor radon.
09/30/89–09/29/94	Centers for Disease Control and Prevention	$400,000 per year	G. Land	Build state program and state plan to survey injuries and coordinate development of interventions to prevent injuries.
1989–92	National Highway Traffic Safety Administration and Missouri Department of Public Safety/Division of Highway Safety	$170,000	M. Van Tuinen	Linkage of motor vehicle crash records, ambulance trip tickets and hospital discharge data for the year 1988, to study the effects of seat belt and motorcycle helmet use on probability of injury and cost of injury.
08/01/90–01/31/94	National Institute of Child Health and Human Development	$121,509	W. Schramm J. Stockbauer J. Bakewell	Repetition of Low Birth Weight in Successive Pregnancy Outcomes in Missouri—Linkage of 1978 to 1990 successive pregnancies is attempted and results analyzed.
10/01/91–Ongoing	Bureau of Labor Statistics	$26,000 per year	G. Land	Establish data set of all deaths due to occupationally-related injuries occurring in Missouri.
10/01/91–Ongoing	Centers for Disease Control and Prevention/ National Institute for Occupational Safety and Health	$94,300	T. Ray	Missouri Occupational Fatality Assessment and Control Evaluation (MO FACE). Monitor and investigate occupational deaths in Missouri to provide employers with effective recommendations for injury prevention.
09/01/92–08/31/97	National Highway Traffic Safety Administration	$648,000	M. Van Tuinen	Linkage of motor vehicle crash records, ambulance trip tickets, hospital discharge mortality, and outpatient data for the year 1990, to study the effects of seat belt and motorcycle helmet use on probability of injury and cost of injury.
1992–94	Centers for Disease Control and Prevention	$256,856	M. Bright	Special Invasive Bacterial Infections Study. Active, laboratory-based surveillance for invasive infections caused by *Haemophilus influenzae*, *Neisseria meningitidis*, *Listeria monocytogenes* and Group B streptococcus.
07/01/93–6/30/98	Centers for Disease Control and Prevention	$783,253 in SFY97	M. Hand	Establish registry of all blood lead testing on Missourians less than 6 years of age.

Grants, Contracts and Cooperative Agreements (continued)

Funding Period	Agency	Amount	Project Director	Summary
1994	Centers for Disease Control and Prevention	$100,000	B. Malone	Enhance surveillance of vaccine-preventable and other diseases.
09/01/94–08/31/99	Centers for Disease Control and Prevention	$150,000	J. Jackson-Thompson	Behavioral Risk Factor Surveillance System Random-digit-dialed telephone survey of Missouri residents regarding prevalance of chronic disease risk factors.
1995	Centers for Disease Control and Prevention	$97,000	B. Schmidt	Enhance surveillance of vaccine-preventable and other diseases.
09/30/95–09/29/98	Centers for Disease Control and Prevention	$597,925 in FY98	J. Jackson-Thompson	Enhance Missouri's existing central cancer registry.
1996	Centers for Disease Control and Prevention	$33,639	M. Skala	Enhance surveillance of vaccine-preventable and other diseases.
06/20/97–06/19/98	National Highway Traffic Safety Administration	$63,000	M. Van Tuinen	Crash Outcome Data Evaluation System (CODES) peer-to-peer technical assistance cooperative agreement. This is a multi-year grant first awarded in 1996. The purpose is to assist other states to develop CODES data sets, continue development of CODES data in Missouri, and further the use of CODES data for injury reduction and prevention by disseminating it to policy makers and other health officials.
08/01/97–07/31/2000	Centers for Disease Control and Prevention	$144,509	M. Van Tuinen	Traumatic Brain Injury Surveillance Program grant to upgrade Missouri's reporting of head injuries by validating a sample of records to determine whether they meet the criteria for our registry, by increasing the reporting of brain-injury cases through linkage of our registry to the Patient Abstract (hospital emergency room and inpatient) and mortality records, and by decreasing the time required to publish the annual report.
09/30/97–09/29/99	Centers for Disease Control and Prevention	$138,922	G. Land	Immunization Registry Targeted Research Project. The study will determine how effective and feasible it is to link existing billing and/or patient management and immunization data into a central registry.
09/30/97–09/29/2002	Centers for Disease Control and Prevention	$258,288	G. Land	Collaborative Community Assessment Partnership. This grant will allow implementation of a comprehensive assessment model developed by the Department of Health. The model includes the development of an integrated information system (MOHSAIC), a data warehouse for department program and policy staff and community data on the department's web site for local assessments.

Grants, Contracts and Cooperative Agreements (continued)

Funding Period	Agency	Amount	Project Director	Summary
09/30/97–09/29/98	Centers for Disease Control and Prevention	$130,000	G. Land	Outcomes of Agricultural Injury to Children in Missouri. The study will examine the outcomes of childhood agricultural injuries and the impact of those injuries on the agricultural activities of their families.
03/01/98–02/28/99	Centers for Disease Control and Prevention	$749,879	G. Land	Integrated Public Health Information Infrastructure System. The grant will support the development of four components of MOHSAIC (surveillance, care coordination, environment and primary care). The project will include the redevelopment of the immunization component as a WEB-based application so more private providers will have access to the immunization component. This will complete the MOHSAIC project.

Department of Health Internet Home Page

In an effort to make information more readily available to its consumers, the Department of Health established an Internet Home Page in the fall of 1996. The home page was modified to its current more user friendly format in the spring of 1997. The home page is located at http://www.health.state.mo.us.

The Department of Health Home Page provides the following features:

Legislative Issues—Identifies legislation potentially impacting public health issues. Detailed information prepared by staff in the Missouri General Assembly is available on each individual bill. This includes the bill sponsor, a summary of the bill and the current status of the bill.

Directory of Services—Includes an organizational chart for the Department of Health and describes the various units within the department.

Public Health Agencies—Lists local public health agencies in Missouri along with addresses and phone numbers for each.

Disease Directory—Provides a clinical description, laboratory criteria for diagnosis and a case classification for numerous communicable diseases.

Resource Material—Provides a listing of available resource documents on strategic planning, disease prevention, health promotion and access to health care services.

Employment Opportunities—Provides a description of current vacant positions within the Department of Health.

Public Meetings and Announcements—Lists Department of Health public meetings and announcements.

Requests for Proposals—Lists requests for proposals funded by the Department of Health.

For Public Comment—Contains various Department of Health statutory/regulatory proposals and drafts of documents open for public comment.

News Releases—Contains various news releases regarding public health issued by the Department of Heath.

Publications—Contains various Department of Health publications, such as special reports and newsletters.

Birth and Death Records—Provides information on obtaining birth, death, marriage and dissolution of marriage certificates from the Department of Health. It also lists phone numbers to contact if you want to correct or change a birth or death record.

Data Profiles—Contains the following statistical profiles for the state and each individual Missouri county:

- Leading Causes of Death
- Selected Socio-Economic Indicators
- Leading Causes of Hospitalization
- Hospital Profile
- Hospital Summary Profile
- Residential Care and Nursing Home Profile
- Population Estimates by Age and Sex
- Selected Maternal and Child Health Status Indicators
- Medicaid Participants by Age and Race
- Communicable Diseases

Department of Health Internet Home Page (continued)

Injuries—Provides Missouri injury data, which includes tabulations by age of the total number of deaths, total number of hospital treatments, total hospital charges and rates per 100,000 population for leading and other selected causes of injury.

Fact Sheets/Reports—Contains various Department of Health facts sheets and reports, such as the STD/HIV KWIK Facts and the 1994–95 Biennial Report of Reportable Diseases and Conditions in Missouri.

Prevention and Wellness—Contains various documents relating to prevention and wellness. A copy of the Tuberculosis Control Manual can be found here.

Community Health Initiatives—Contains descriptions of various Department of Health programs addressing community health needs.

Licensing and Certification—Contains various Department of Health rules and regulations.

Missouri Information for Community Assessment (MICA) System—This system allows the user to develop data tables for specific cause(s) of death by one or more counties, year, race, sex and age group.

New items are continually being added to the Department of Home Page.

If you have questions or comments regarding the home page, please call Harold Kirbey at (573) 751-6219 or e-mail him at kirbeh@mail.health.state.mo.us.

Ambulance Runs

The Emergency Medical System is a state-supported, legislatively-mandated program maintained to provide data on ambulance services within the state to local, regional and state agencies which administer and plan emergency medical services activities in Missouri.

A Missouri Ambulance Reporting Form (MO 580-0597) is used to gather data each time a patient is transported to a hospital by ambulance. A copy of the reporting form can be found on pages A-2 to A-3 of the Appendix. The ambulance service which completes the report retains one copy, leaves one copy with the receiving hospital and forwards the third copy to the Department of Health for further processing. Ambulance services are required to keep their copies for five years.

Since its inception, the report system has had six revisions: February 1979, January 1984, January 1992, January 1993, July 1994 and December 1996. The reporting form currently in use (1996) was designed to better meet the needs of all the users. This triplicate form is divided into two distinct sections, with all the computerized items located on the left side. The right side of the form is used by ambulance and emergency department personnel to document the details of the pre-hospital care and is not computerized.

From 1976 to the present, computerized run records can be accessed by research analysts to answer requests for data. Since 1995, complete information is available only for emergency runs to life-threatening situations.

Summary reports of data are sent to each ambulance service on a yearly basis. The summary reports contain information in such categories as location and time of incident, patient demographics, patient assessment and status, injury severity scores and aids administered.

DATA ITEMS ON TAPE:

Data Items	Years Available
Run Report Number	1976–present
Date of Incident	1976–1983
Date of Run	1976–present
Requester	1976–1978
Ambulance Service Number	1976–present
Ambulance License Number	1984–present
County of Incident	1976–present
Location of Incident	
City or Institution Code	1976–present
Accident Location	
Rural Route	1976–1978
House Number	1976–1978
Street or Place Number	1976–1978
Above Code	1976–1978
Above Number	1976–1978
State	1976–present
Zip Code	1976–present
Location Code (Hospital)	1976–1978
Type of Run	1976–1983
Type of Run To the Scene	1984–present
Type of Run From the Scene	1984–present
Miles to Location	1976–present
Miles from Location to Hospital	1976–present
Miles Return to Base	1976 –1978
Crew License Numbers	
Up to 3 Licenses	1976–present

Data Items	Years Available
Times:	
Incident Occurred	1976–1978
Call Received	1976–present
Unit Dispatched	1976–present
Enroute	1976–present
Arrive Location	1976–present
Depart Location	1976–present
Arrive Destination	1976–present
Unit Available	1976–1978; 1984–present
Scene of Emergency	1976–present
Use of Protective Equipment	1984–present
Difficulty En Route	1976–present
Patient City	1976–present
Patient State	1979–present
Patient Zip Code	1979–present
Date of Birth	1976–present
Age	1976–present
Race	1976–present
Sex	1976–present
Patient Destination	1976–present
Use of Siren	1984–1994
Clinical Save	1979–1994
Prior Care Provider	1984–present
Prior Care Type	1984–present
Time of Cardiac Arrest	1984–1994
Time of Extrication	1984–1994

Ambulance Runs (continued)

Data Items	Years Available
Level of Consciousness	1976–1994
Response to Sensation	1984–1994
Pupil Response	1984–1994
Skin Color	1984–1994
Skin Moisture	1984–1994
Skin Temperature	1984–1994
Patient Status	1976–1994
Severity	1976–1983
Subtotal Trauma Score	1984–1994
Glasgow Coma Score	1984–present
Total Trauma Score	1984–present

Data Items	Years Available
Patient Assessment:	
One Injury	1976–1983
One Illness	1976–1983
Four Injuries	1984–present
Two Illnesses	1984–1994
Aids Administered:	
Up to Eight Aids	1976–1983
Up to Ten Aids	1984–present
Time and Date of Injury	1992–present
Mechanism of Injury	1992–present

RELATED PUBLISHED ARTICLES:

Van Tuinen M. Measuring emergency medical system responsiveness to highway crashes. Missouri Monthly Vital Statistics 1990;24(8).

FEE FOR DATA:

The fee for data requiring computer programming will include a $50 file access charge, $30 per hour research analyst time and $2.50 postage and handling. State and local health departments, other Missouri state agencies and local government, media, media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

Jay Thompson
Bureau of Emergency Medical Services
Division of Health Standards and Licensure
Missouri Department of Health
P.O. Box 570
Jefferson City, MO 65102-0570

Ph: (573) 751-6356
FAX: (573) 751-6348

Ambulance Service Survey

In 1984, the first biennial Missouri Ambulance Service Survey was conducted. The survey is completed by every ambulance service in the state. Responses to the survey provide data on fiscal, staffing and level of service characteristics. A copy of the survey form can be found on page A-4 of the Appendix. These data are integrated with data obtained from the Missouri Ambulance Reporting Form for the previous calendar year and comparison of rural and urban averages are calculated for all factors. The results are published biennially in an *Ambulance Service Profile*.

The purpose of the profiles produced from the survey is to assist ambulance services in their own assessment and planning efforts. Because of this use, each ambulance service and each ambulance service governing board, as well as each member of the Emergency Medical Services State Advisory Council and lead agencies for emergency medical services in the other 49 states (plus the District of Columbia), receive one complimentary copy. Since 1984, a new edition of *Ambulance Service Profile* has been produced every two years.

DATA ITEMS AVAILABLE:

Data Items	Years Available
Service	1983–84 to present
Service Type	1983–84 to present
County	1983–84 to present
Area Type	1983–84 to present
Number of Ambulances	1983–84 to present
Average Runs Per Vehicle	1983–84 to present
Total Runs	1983–84 to present
Number Emergency Runs	1983–84 to present
Percent of Emergency Runs Life Threatening	1983–84 to present
Base Rate (Emergency)	1983–84 to present
Base Rate (Non-emergency)	1985–86 to present
Charge Per Loaded Mile (Emergency)	1983–84 to present
Charge Per Loaded Mile (Non-emergency)	1985–86 to present
Average Additional Charge (Emergency)	1985–86 to present
Collection Rate (Last Fiscal Year)	1983–84 to present
Tax Levy Per $100 For EMS (Districts)	1983–84 to present
Expected Revenue From Political Subdivisions	1983–84 to present
Expected Expenses From All Sources	1985–86 to present
Total Ambulance Personnel	1983–84 to present

*Average may not equal sum of two previous averages

Data Items	Years Available
Average Runs Per Staff	1983–84 to present
Percent Staff Paramedics	1983–84 to present
Percent Staff EMT	1983–84 to present
Percent Staff AFA	1983–84 to present
Percent Staff Full-Time	1983–84 to present
Percent Staff Part-Time	1983–84 to present
Percent Staff Volunteer	1983–84 to present
Average Annual Salary For EMT-A	1985–86 to present
Average Annual Salary for Paramedics	1985–86 to present
Average Annual Salary for Dispatchers	1992
Average Dispatch to Enroute Time (Minutes)	1983–84 to present
Average Enroute to Arrive Time (Minutes)	1983–84 to present
Average Total Response Time (Minutes)*	1983–84 to present
Percent of Life Threatening Trafficway Emergency Runs with MEMT Aboard	1983–84 to present
IV Solutions	1983–84 to present
Cardiac Drugs	1983–84 to present
Monitor/Defibrillator	1983–84 to present
AED Defibrillator	1992

PUBLICATIONS AVAILABLE:

Publication Number	Report Title	Date	Publication Cost
9.7	Missouri Ambulance Service Profile	1995–96	$25.00

Ambulance Service Survey (continued)

FEE FOR DATA:

The fee for data on emergency medical services licensed personnel or ambulance services requiring computer programming will include a $5 file access charge, $30 per hour research analyst time and $2.50 postage and handling. State and local health departments, other Missouri state agencies and local government, media, media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

CONTACT FOR DATA, COPIES OF PROFILE OR ADDITIONAL INFORMATION:

Jay Thompson
Bureau of Emergency Medical Services
Division of Health Standards and Licensure
Missouri Department of Health
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Census of Fatal Occupational Injuries

The U.S. Department of Labor began the Census of Fatal Occupational Injuries (CFOI) in 1991 with the participation of 38 states. The U.S. Department of Labor devised the system to tabulate and report occupational fatalities in a manner that is accurate, timely, descriptive, complete and accessible. Missouri joined the program in 1992, with the Missouri Department of Health collecting the data for Missouri. The U.S. Department of Labor publishes an annual report from these data, reporting in aggregate the figures for each state and for the nation as a whole. Data on individual cases are not published.

DATA ITEMS AVAILABLE:

Data Items	Years Available
Reference Year	1992–present
Record Status Code	1992–present
Injury/Illness Indicator	1992–present
Work Relationship Code	1992–present
Employee's State of Residence	1992–present
Employee's Age	1992–present
Employee's Race	1992–present
Employee's Hispanic Origin	1992–present
Employee's Gender	1992–present
Employer's SIC (Standard Industrial Classification Code)	1992–present
Type of Employer Ownership (Private/Government)	1992–present
Size of Employer's Work Force	1992–present
Employee's COCS (Census Occupation Coding System) Code	1992–present

Data Items	Years Available
Employee's Employment Status	1992–present
State of Employment	1992–present
Date of Death	1992–present
Date of Injury/Illness	1992–present
State of Death	1992–present
State of Injury/Illness	1992–present
Cause of Injury/Illness (ICD-9 Code)	1992–present
Nature of Injury/Illness	1992–present
Part of Body Affected	1992–present
Event/Exposure	1992–present
Source of Injury/Illness	1992–present
Secondary Source of Injury/Illness	1992–present
Employee's Activity	1992–present

RELATED PUBLISHED ARTICLES:

Van Tuinen M. Fatal occupational injuries in Missouri. Missouri Monthly Vital Statistics 1995;29(10).

Van Tuinen M. The census of fatal occupational injuries. Missouri Monthly Vital Statistics 1993;27(8).

FEE FOR DATA:

The fee for data requiring computer programming will include a $50 file access charge, $30 per hour research analyst time and $2.50 postage and handling. State agencies, legislators, media and students will not be charged. Data will be provided in summary form and will not include identifiers. A user manual is not yet available for this system.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

Bureau of Health Services Statistics
Center for Health Information Management and Epidemiology
Missouri Department of Health
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Jefferson City, MO 65102-0570

Ph: (573) 751-6274
FAX: (573) 526-4102

Head and Spinal Cord Injury/Trauma Registry

Section 192.757, RSMo enacted in 1986 established the Missouri Head Injury Advisory Council and required the Department of Health to establish and maintain an information registry and reporting system for the purpose of data collection and needs assessment of head and spinal cord injured persons in Missouri. On July 1, 1987, the Department of Health implemented the Head and Spinal Cord Injury Registry to meet this requirement.

Section 190.241, RSMo enacted in 1987 required all hospitals that are designated trauma centers to submit to the Department of Health data on patients that meet criteria set by the Missouri State Advisory Council on Emergency Medical Systems. (These criteria can be found in the user manual for this system.) The Department of Health implemented the Trauma Registry in 1990 to comply with this requirement. Data items submitted to the Trauma Registry are the same as those required for the Head and Spinal Cord Injury Registry and are listed below.

Each hospital can use the registry system to track both prehospital and hospital performance to measure compliance with established standards and then identify and correct deficiencies found. The hospital's trauma quality assurance committee will find that the trauma registry is an invaluable tool for improving its trauma program and proving its effectiveness.

The name, age and residence of the injured person, the date and cause of injury, and the diagnosis are specifically required by law. The name is needed to trace the patient from one medical institution to another, such as a rehabilitation facility, to determine a patient's final outcome. The Head and Spinal Cord Injury/Trauma Registry report form (MO 580-1118) can be found on pages A-5 to A-6 of the Appendix.

POLICY FOR RELEASE OF INFORMATION:

The legislation is very specific in requiring that the information reported to the Department of Health be held confidential. The identities of patients, physicians and hospitals can be released by the Department of Health only if the individuals and institutions authorize the release.

DATA ITEMS ON TAPE:

(Data items available 1987 to present unless otherwise indicated)

Data Items

Registry Number
Hospital Codes
Medical Record Number
Patient SSN
Patient Name
Date of Birth (MMDDYY)
Sex
Street
Patient City
Patient County
Patient State
Patient Zip Code
Race
If a Transfer Patient:
- Hospital Transferred From
- City of Hospital Location
- Date of Arrival
- Time of Arrival

Parent or Guardian
Parent/Guardian SSN
Date of Injury (MMDDYY)
Time of Injury

Data Items

External Cause (ICD-9-CM)
Injury City
Injury County
Injury State
Place of Injury
Contributing Factor
Injury Work Related
Pre-Intubate
Arrive by Transport Type
Ambulance Service Number
Ambulance Report Number
Ambulance Times
- Unit Dispatched
- Arrive Location
- Depart Location
- Arrive Destination

Transfer Hospital
Date Arrive Emergency Department
Time Arrive Emergency Department
Glasgow Coma Score
Cardiopulmonary Functions
Time Intubated Emergency Department

Head and Spinal Cord Injury/Trauma Registry (continued)

DATA ITEMS ON TAPE (continued):

Data Items

Time CAT Scan
Time X-ray
Time Trauma Surgeon Arrived
Time Orthopedic Surgeon Arrived
Time Neurosurgeon Arrived
Time Discharge From Emergency Department
Emergency Department Disposition
Receiving Hospital Name
Date Arrive Operating Room
Time Arrive Operating Room
Procedures 1–5
Diagnoses 1–5
Admission Date
Discharge Date
ICU Days

Data Items

Disposition
Degree Disability
Source of Payment
Abbreviated Injury Scale
Injury Severity Score
Degree of Disability at Discharge for:
  Feeding Self (1990–Present)
  Expressing Self (1990–Present)
  Locomotion (1990–Present)
File Identifier (HSCI or Trauma) (1990–Present)
Drugs Detected in E/R (1990–Present)
Blood Alcohol Concentration (1990–Present)
Billed Hospital Charges (1990–Present)
Number of Records per Person per Incident

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
19.1	**Head & Spinal Cord Injury Registry Report** This report presents incidence frequencies and rates of head injuries and spinal cord injuries for 1991–1992. Also included are the number of injured persons by age, sex, race, cause and injury type; and information on Glasgow scores, disability level, injury severity scores (ISS) and hospital charges.	May 1994	$10.00
19.2	**Head & Spinal Cord Injury Registry Report** Update version of above report, containing data for 1993–1994.	July 1997	$10.00

RELATED PUBLISHED ARTICLES:

Thompson RJ, Land G, Van Sciver E. Spinal cord injuries caused by penetrating trauma: 1988–1991. Missouri Monthly Vital Statistics 1993;26(11).

Van Tuinen M. Motor vehicle crashes and fatalities in Missouri. Missouri Monthly Vital Statistics 1990;24(3).

Van Tuinen M. 1988 head and spinal cord injuries. Missouri Monthly Vital Statistics 1989;23(7).

FEE FOR DATA:

The fee for data requiring computer programming will include a $70 file access charge, $30 per hour research analyst time and $2.50 postage and handling. State and local health departments, other Missouri state agencies and local government, media/media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

CONTACT FOR DATA, REPORTS OR ADDITIONAL INFORMATION:

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Linked Motor Vehicle, Medical Care Files

With funds provided by the National Highway Traffic Safety Administration (NHTSA) and the Division of Highway Safety, the Missouri Center for Health Statistics has linked statewide motor vehicle crash records to medical care files. The 1996 and 1993 motor vehicle crash files were linked to the 1996 and 1993 Emergency Medical System (EMS) ambulance trip files and the Patient Abstract System (PAS) file of emergency department and inpatient records. The 1990 motor vehicle crash file was linked to the 1990 Emergency Medical System ambulance trip file, Head and Spinal Cord Injury/Trauma Registry, Hospital Discharge Data System, Outpatient Data System and Vital Statistics Death Certificate Data System. The 1988 motor vehicle crash file was linked to the 1988 Emergency Medical System ambulance trip file, Hospital Discharge Data System and Head and Spinal Cord Injury Registry.

The purpose for linking these files is to be able to relate motor vehicle crash characteristics (such as seat belt use) to the severity, type, likelihood and costs of injuries. Identifying an individual's record in each of the above files makes this type of research possible. As only a few of these files contain the individual's name, identifying an individual's record across files and linking them together into one file is very difficult. To link the 1990 data, special software provided by the National Highway Traffic Safety Administration was used. This software links records based on the probability that records with similar values on common variables represent the same person. Even using this software, file linking is an intensive and time consuming task. Thus, at this time, files for 1988, 1990, 1993 and 1996 have been linked.

The linked files are comprised of many data items. The 1993 and 1996 files contain all data items from the Emergency Medical System ambulance trip file and the Patient Abstract System. The data items contained in the Emergency Medical System ambulance trip file are listed in the section for Ambulance Runs found on pages 29–30. The data items contained in the Patient Abstract System are listed in the section for Patient Abstracts found on pages 69–81. Because the motor vehicle crash file data items are too numerous to be listed in their entirety, only the most frequently used data items are listed below. More complete documentation can be obtained upon request.

DATA ITEMS AVAILABLE FROM MOTOR VEHICLE CRASH FILE:

(Data items available for 1988, 1990, 1993 and 1996.)

Data Items	Data Items
Crash Date	Vehicle Type
Speed Limit	Person Age
Light Conditions	Seatbelt Use
Road Surface	Helmet Use
Road Conditions	Injury Level
Crash Type	Driver Intoxication
Direction Analysis	Initial Vehicle Damage
Two-Vehicle Analysis	Number of Vehicles
Speed Related Crash	Highway Class
Driver Ejected	Crash at intersection
Person Gender	

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
20.1	Missouri Crash Outcome Data Evaluation System (CODES) This report presents injury level, average hospital charges, total hospital charges and pay source, and Regional Planning Commission areas according to six motor vehicle crash characteristics: speed limit at the crash site, safety belt use, alcohol impairment, type of crash, vehicle type and driver age. Death rates by body-area injured, mean and median emergency department and inpatient charges by body-area injured, and risk factors and outcomes by Regional Planning Commission areas are also presented.	1993	No Charge

Linked Motor Vehicle, Medical Care Files (continued)

RELATED PUBLISHED ARTICLES:

Van Tuinen M. Unsafe driving behaviors and hospitalization. Missouri Medicine 1994;91(4):172–75.

The medical costs associated with motor vehicle crashes are difficult to measure. Most attempts have used crash data and cost data that are only indirectly related to each other or have followed patients in a few hospitals or trauma centers. These studies produce localized estimates or rough national estimates of limited use to policy makers. The result has been a dependence on more readily available mortality data, such as the Fatal Accident Reporting System, to guide automotive safety efforts.

The limitations of mortality data and the increasing sophistication of medical care databases have resulted in a strong interest in obtaining crash-linked morbidity data. Hence, in 1993, the National Highway Traffic Safety Administration (NHTSA) awarded the Missouri Department of Health and six other applicants grants to link automotive crash records to statewide ambulance trip, outpatient care, hospitalization and mortality records. By identifying an individual across multiple data sets, states would be able to determine directly the relationship of driver behaviors and crash characteristics to hospitalization rates and other medical outcomes. Examination of hospital pay source information would expose the toll of automotive crashes on public tax dollars.

Having recently completed the record linkage phase of this project, Missouri Department of Health staff are beginning to analyze the impact of automotive crashes on health care costs in Missouri. In this report, three unsafe driving behaviors (failure to use a safety device such as seatbelts and motorcycle helmets, driving under the influence of alcohol and speeding) are related to the risk of hospitalization or death, hospital costs, and expected pay source.

Van Tuinen M. Injuries and costs associated with failure to use seat belts. Missouri Monthly Vital Statistics 1994;28(9).

Van Tuinen M. Injuries and costs associated with failure to use motorcycle helmets. Missouri Monthly Vital Statistics 1995;29(1).

FEE FOR DATA:

There is no fee for these data. A user manual is not yet available for these data.

CONTACT FOR DATA, REPORTS OR ADDITIONAL INFORMATION:

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Missouri Occupational Fatality Assessment and Control Evaluation (MO FACE)

The Missouri Occupational Fatality Assessment and Control Evaluation Program (MO FACE) began in Missouri with a grant award on October 1, 1991, from the Centers for Disease Control and Prevention and the National Institute for Occupational Safety and Health (NIOSH). The program is designed to build the state's capacity for conducting occupational fatality investigations using NIOSH Fatality Assessment and Control Evaluation (FACE) Model in Missouri. This project provides additional surveillance, engineering solutions, preventive measures and intervention strategies to all employers in the state, and especially to employers who do not have access to conventional occupational safety and health assistance. Investigation of occupational fatalities with this system enables Missouri employers to develop and implement appropriate safety training, prevention and intervention projects. This, in turn, will provide additional worker protection, as well as significantly strengthen the occupational public health infrastructure in this state and nationally, thereby showing a measurable reduction in traumatic occupational fatalities in Missouri and nationally.

Since October 1, 1991, the MO FACE program has been monitoring and investigating occupational deaths in Missouri. The data generated from this program have contributed to accurate identification of work-related deaths and identification of the state's high-risk industries and occupations. Investigations conducted by MO FACE do not determine fault or legal liability associated with a fatal incident or with current occupational safety and health regulations. All MO FACE data are reported to NIOSH for trend analysis on a national basis. This also enables NIOSH to provide employers with effective recommendations for injury prevention. All personal/company identifiers are removed from all reports sent to NIOSH to protect the confidentiality of those who voluntarily participate with this program.

On average, 12 workers are killed each week and 150 workers die each year on the job in Missouri. According to Department of Health data, Missouri's overall civilian work force fatality rate is 5.7 per 100,000 workers. The leading causes of worker deaths are motor vehicle, homicide, contact with objects and machinery, falls and electrocutions. Though our overall fatality rate is slightly lower than the national average, the rate in many of our industries is higher. These include agriculture at 30 per 100,000 workers, construction at 20 per 100,000 workers, and transportation and public utilities at 14 per 100,000 workers.

MO FACE established and maintains an accurate and timely surveillance system for detecting all traumatic occupational fatalities occurring within the state and continues to have excellent statewide participation in its system. This surveillance system consists of 115 coroners or medical examiners, 114 sheriffs, 546 police departments, 900 fire departments and 221 ambulance services. Occupational fatality reports are also received through the Occupational Safety and Health Administration, a newspaper clipping service, office personnel and from the Bureau of Vital Records. This is a timely, comprehensive, multiple-source, state-level surveillance system, which was established in June 1992 by a mass mailing to these emergency responders, and has been updated annually.

Since the establishment of the surveillance system in June of 1992, MO FACE has been notified of more than 1,000 possible workplace fatalities. Of these, almost 800 have been determined to be work-related deaths due to a trauma-related injury. *First Report of Fatality* documents were filed and submitted to NIOSH on each of the above cases. Other deaths due to natural causes, or those that were not related to the work environment, are not included in the information submitted to NIOSH.

The MO FACE Program continues to develop all program facets. The MO FACE surveillance system is under constant development and refinement. The program continues its expanded scope of fatality investigations, better serving the needs of the state. Electronic uploading of occupational fatality data and electronic mail messages to the Centers for Disease Control and Prevention (CDC) and NIOSH is utilized regularly with the CDC Wonder/PC computer program.

Missouri Occupational Fatality Assessment and Control Evaluation (continued)

POLICY FOR RELEASE OF INFORMATION:

Patient level records are not public information, and may be shared only with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the Department of Health under section 192.067, RSMo.

The aggregate statewide data on the number of occupational deaths by industry, occupation, cause, age, sex, race and source of notification are compiled annually. The MO FACE program uses this information to track the incidence of occupational deaths within the state.

ITEMS IN DATABASE:

(Items in database from June 1992 to present)

Data Items

Certificate Number
Record Indicator
Recorded Area:
- State
- County
- City
- Region

Place of Recording
State of Birth
Residence Area:
- State
- County
- City
- City Limits Indicator
- Region

Cause of Death
- Fifth digit (ICD-9 Code)

Selected Significant Conditions:
- First Condition
- Second Condition

Attendant Type
Attendant Identification
Date of Birth (MMDDYY)
Sex
Accident Type
Accident Location:
- State
- County
- City

Date of Death (MMDDYY)
Race
Age at Death
Marital Status
Autopsy
Registrar's Pay
Name
Address
- Zip Code

Data Items

File Date:
- Month
- Day
- Week
- Year

Source
Date Updated (MMYY)
Change Codes
Social Security No.
Location Code for Hospital Deaths
Armed Forces
Birth Certificate No.
- if Less Than 1 Year

Decedent's Family Name
Century of Birth
Century of Death
Industry
Occupation
City of Birth
County of Birth
Surviving Spouse Name
Residence Census Tract
- (St. Louis City and County Only)

Residence Location Years Code
Hispanic Origin Code
Education Code
Burial/Cremation Code
Funeral Facility Number
Pregnancy Indication Code
Autopsy Findings
- Used Code

Date of Injury (MMDDYY)
Hour of Injury
Alcohol Related Injury
Injury at Work
Hour of Death
Decedent's Other Name
Circumstances Surrounding Incident
Victim's Occupation and Industry
Victim's Usual Occupation and Industry (if different)

Missouri Occupational Fatality Assessment and Control Evaluation (continued)

PUBLICATIONS AVAILABLE:

Publication Number	Report Title	Date	Publication Cost
	MO FACE FACTS Federal Funding Extended	June 9, 1997	No Charge
	MO FACE FACTS Electricity–Useful But Deadly	1997	No Charge
	MO FACE FACTS Machinery Related Fatalities	1997	No Charge
	MO FACE FACTS Occupational Fatalities in Missouri	1997	No Charge
	NIOSH ALERT: Preventing Worker Injuries and Deaths From Refuse Collection Vehicles	May 1997	No Charge

RELATED PUBLISHED ARTICLES:

Quinn BM. Bureau of environmental epidemiology 1996 annual report. Missouri Epidemiologist 1997;19(3):14.

Quinn BM. Bureau of environmental epidemiology FY 1995 report. Missouri Epidemiologist 1996,18(3):32–33.

Missouri Department of Health, Division of Environmental Health and Communicable Disease Prevention. Workplace fatalities. Reportable Diseases and Conditions in Missouri Biennial Report, 1994–1995:79–80.

Carlson G. Bureau of environmental epidemiology FY 1994 report. Missouri Epidemiologist 1995,17(3):12.

Carlson G. Bureau of environmental epidemiology FY93 report. Missouri Epidemiologist 1994,16(3):6.

Ray T. Working in the highest risk industry: Agriculture. Missouri Epidemiologist 1993,15(2):1–2.

Ray T. Death on the job: Can occupational fatalities be prevented?—Missouri department of health launches new occupational fatality prevention program. Missouri Epidemiologist 1992,14(5):18–19.

FEE FOR DATA:

MO FACE data have been provided without fee, under good faith that the information provided will be used for injury and fatality prevention. If MO FACE data were to be used for other than these purposes, a fee in compliance with the department's guidelines will be charged.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

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Sexual Assault Forensic Examination-Child Abuse Resource and Education (SAFE-CARE)

The Sexual Assault Forensic Examination (SAFE) network began in 1989 as a cooperative effort involving the Department of Health and the Division of Family Services within the Department of Social Services. In 1994, the program expanded to become the Sexual Assault Forensic Examination-Child Abuse Resource and Education (SAFE-CARE) network and included children who may have been physically abused as well as those who may have been sexually abused or assaulted.

Within the network, services are provided locally; however, responsibility for training, data collection and monitoring of quality reside at the state level. An advisory board comprised of providers oversees the network.

The SAFE-CARE network trains private physicians and nurse-practitioners in examining and interviewing children who may have been sexually abused or assaulted. Each time a child is examined and interviewed, the SAFE-CARE provider must complete the Medical Examination form (MO 886-2780) and return a copy to the Division of Family Services. The SAFE-CARE form serves as a patient record for the physicians and nurse practitioners in the network. It also provides data from which a profile of the patients can be drawn and from which the progress of the network can be charted. A copy of the form is available upon request.

The Bureau of Health Services Statistics has been charged with analyzing the 1995 data collected with the SAFE-CARE form. The SAFE-CARE form is fifteen pages long and includes data items that cover the following areas:

- Examining provider
- Demographic information on the patient, family and perpetrator
- Medical history
- Mechanisms of physical injury
- Symptoms and acts
- Findings of the physical examination
- Description of genital exam
- Laboratory collections
- Evidentiary collections
- Findings of child maltreatment or neglect
- Summary of trauma
- Recommendations for follow-up
- Applicable interventions/treatment
- Agencies that were notified

Data from the SAFE-CARE network are not available at this time.

CONTACT FOR ADDITIONAL INFORMATION:

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Cancer Registry Enhancement Project

The Missouri Cancer Registry (MCR) was established in 1972, although data submission from hospital-based registries was voluntary. Section 192.650, RSMo enacted in 1984 required cancer reporting in Missouri. As a result, 1985 represents the first complete year of cancer data contained in the MCR database. Because the current law requires only in-patient cancer reporting, data are received from hospital-based registrars only. An amendment to the cancer reporting law to require out-patient and physician office cases to be reported is planned.

With the passage by the United States Congress of Public Law 102-515 in October 1992, grant funding from the Centers for Disease Control and Prevention (CDC) was allocated to enhance existing central cancer registries and to establish central registries in states that did not already have one. MCR began receiving CDC funding in 1995.

As a recipient of federal funds, the Missouri central registry was required to adopt specific data sets stipulated by CDC (many of which MCR already collected). Currently, there are 24 required data elements, one Missouri-specific data element, and one Missouri-specific optional data field that are collected. MCR also collects approximately 38 data elements that are either recommended and/or required by the approved cancer program standards of the American College of Surgeons. Hospitals report cancer cases to MCR either electronically or in paper form using the Cancer Registry Initial Abstract form (MO 580-0091), which can be found on pages A-7 to A-8 of the Appendix.

There are many significant organizations concerned with cancer data collection. Among these are American College of Surgeons (ACoS), the North American Association of Central Cancer Registries (NAACCR), the National Cancer Registrars' Association (NCRA), the Cancer Surveillance, Epidemiology and End Results Reporting Program (SEER) and CDC. As these organizations work together to standardize cancer data collection, MCR will continue to modify and enhance data collection in accordance with national standards.

MCR has contracted with the University of California–Irvine for software development of the Missouri Cancer Registry Information System. This software system has been in existence for 15 years and proven to be a successful method for data collection in a region of California which has a comparable number of cancer cases to Missouri. As a result of the introduction of new software, hardware and training, MCR is honoring data requests for cancer data from 1985 through 1992 only. We intend to have one complete central registry database, compliant with all national and state standards, sometime in 1999. After consolidation and clean-up of the database are complete, data requests received from researchers, physicians, hospital administrators and other health care professionals, as well as citizens, for current cancer data will be honored.

POLICY FOR RELEASE OF INFORMATION:

Patient level records are not public information, and may be shared with researchers or through data exchange agreements with other central registries in accordance with section 192.655, RSMo (1994).

Aggregate data at the county, district or state level are available upon request.

ITEMS IN DATABASE:

(Items in database from 1985 to present)

Data Items Required by CDC

Last Name, First Name, Middle
Address at Diagnosis (includes city, county, state and zip code)
Census Tract (MCR will code)
Race
Spanish/Hispanic Origin
Sex
Birth Date
Social Security Number

Data Items Required by CDC

Industry Text (MCR will code)
Occupation Text (MCR will code)
Date of Diagnosis
Date of Admission
Source of Information (reporting source)
Primary Site
Morphology Type, Behavior and Grade
Sequence Number
Laterality

Cancer Registry Enhancement Project (continued)

Data Items Required by CDC

Diagnostic Confirmation
Stage of Disease
Type and Date of First Course of Definitive Treatment
Date of Death
Underlying Cause of Death
Date of Last Contact
Vital Status

Missouri-Specific Data Item

Years of Tobacco Use

Missouri-Specific Optional Data Item

Toxic Exposure

Data Items Required and/or Recommended by ACoS

Reporting Hospital/Facility Number
Accession Number**
Accession Year**
Maiden Name
Alias
Current Address (street no., city, state, zip, county)
Name of Spouse/Parent
Abstracted by
Hospital Referred From
Hospital Referred To
Medical Record Number
Discharge Date
Primary Payor
Primary Surgeon
Attending Physician
Following Physician
Telephone Number
Birthplace
Age at Diagnosis
Marital Status
Family History of Cancer
Alcohol History

Data Items Required and/or Recommended by ACoS

Tobacco History
Class of Case**
Date of First Positive Biopsy
Extent of Disease (tumor size, regional nodes examined and positive
Tumor markers (one and two)
TNM Stage (clinical or pathological)
Date of Initial Treatment
Residual Tumor
Surgical Approach
Recurrence Information (type, date and distant site[s])
Last Contact Date
Tumor Status**
Quality of Survival
Follow-up Method
Death Information (ICD revision number, place, autopsy)
Text Fields**
a. Diagnostic Procedures**
b. Physical Exam**
c. X-rays/Scans**
d. Scopes**
e. Lab Tests**

**data item strongly recommended by MCR

RELATED PUBLISHED ARTICLES:

Turner A, Johnson RH, Carlson G. Exposure investigation in Cadet, Missouri. Missouri Epidemiologist 1997,19(2):1–5.

Center for Health Information Management and Epidemiology. Trends in cancer mortality. Missouri Monthly Vital Statistics 1996;30(10).

Cancer Registry Enhancement Project (continued)

RELATED PUBLISHED ARTICLES (continued):

Brownson RC, Alavanja MCR, Caporaso N, Berger E, Chang JC. Family history of cancer and risk of lung cancer in lifetime non-smokers and long-term ex-smokers. Int J Epidemiol 1996;26(2):256–63.

Background: Genetic factors appear to play a role in the aetiology of lung cancer.

Methods: To examine the association between family history of cancer (all types) and risk of lung cancer among non-smokers, we conducted a case-control study. Cases (n = 618) were identified through the Missouri Cancer Registry for the period 1986 through 1991, and included 432 lifetime non-smokers and 186 ex-smokers who had stopped at least 15 years prior to diagnosis or had smoked for less than one pack-year. Controls (n = 1402) were selected through drivers license and Medicare files.

Results: The risk of lung cancer increased directly in relation to the number of family members affected with cancer. The odds ratio (OR) associated with five or more first-degree relatives with cancer was 2.7 (95% confidence interval [CI] : 1.2–6.1), with significant linear trend in risk according to the number of relatives affected (P = 0.03). Increased lung cancer risk was associated with two or more affected siblings (OR = 1.4; 95% CI : 1.0–1.9) and with two or more affected offspring (OR = 3.2; 95% CI : 1.3–8.1). Risk was slightly elevated for family history of lung cancer (OR = 1.3; 95% CI : 1.0–1.8).

Conclusions: Our study identified a slight increase in risk of lung cancer in relation to five or more relatives with cancer. Preventive implications of this increased risk are unclear because the attributable fraction is low in comparison to a variety of other factors.

Chang JC, Hagan RA, Malone BR. Prostate cancer incidence in Missouri: An updated analysis. Mo Med 1995;92(11): 693–95.

Prostate cancer incidence increased dramatically in Missouri in the 1990s. However, this study demonstrates that the increased incidence parallels the dramatic increase in the earliest stages of the disease. Increased detection for prostate cancer is believed to play a strong role in this rising incidence. Continued surveillance for prostate cancer is necessary to determine the significance of the sharp rise in the incidence in Missouri.

Brownson RC, Loy TS, Ingram E, Myers JL, Alavanja MCR, Sharp, DJ, Chang JC. Lung cancer in nonsmoking women. Cancer 1995;75(1):29–33.

Background: Despite the widespread view that important clinical and etiologic differences exist between histologic categories of lung cancer, few studies have examined the accuracy of hospital-reported pathologic diagnoses of lung cancer.

Method: A review of pathologic material and an assessment of survival patterns were conducted in conjunction with a recently completed case-control study of lung cancer among nonsmoking women in Missouri. Using established protocols, tissue slides from tumors of 482 patients were reviewed by 3 pathologists.

Results: Adenocarcinoma was the most common histologic type among former smokers and lifetime nonsmokers. The overall agreement rate between the original and review diagnoses was 65.6%. The positive predictive value ranged from 0.33 for bronchioalveolar carcinomas to 0.84 for adenocarcinomas. Agreement rates for small, medium and large hospitals were 63.1, 66.6 and 66.2%, respectively. Survival rates were highest for bronchioalveolar carcinoma and lowest for small cell carcinoma.

Conclusion: Given the importance of lung cancer to public health and the need to examine risk by histologic type, these data indicate that pathologic review of registry-reported lung cancer cases may be an important component of large scale studies of etiology.

Alavanja MCR, Brownson RC, Lubin JH, Berger E, Chang J, Boice JD. Residential radon exposure and lung cancer among nonsmoking women. J Natl Cancer Inst 1994;86(24):1829–37.

Background: Radon at sufficiently high concentrations is known to cause lung cancer among underground miners and in experimental laboratory animals.

Purpose: Our aim was to determine whether indoor levels of radon are associated with a detectable increase in lung cancer. Non-smoking women were selected because they offer the best opportunity to detect radon-related risk while minimizing the potentially confounding influences of cigarette smoking and occupation.

Methods: A population-based, case-control study of incident lung cancer was conducted in Missouri. A total of 538 nonsmoking white women diagnosed with lung cancer between 1986 and 1992 and 1183 age-matched control subjects were identified from the Missouri Cancer Registry and from drivers license and Medicare listings, respectively. Information on lung cancer risk factors was obtained by telephone interview. Year-long radon measurements were sought in every dwelling occupied for the previous 5–30 years.

Results: Radon measurements covered 78% of the relevant residential period, and women reported being indoors for 84% of this time. The time-weighted average radon concentrations were exactly the same for case subjects and control subjects (1.82 pCi/L of air [pCi L^{-1}]). Radon levels greater than 4 pCi L^{-1} were experienced by 6.5% of the case subjects and 6.8% of the control subjects. For all data combined, there was little evidence for a trend of lung cancer with increasing radon concentrations (two-tailed trend test, P = .99 continuous data analysis; P = .19 categorical data analysis). A positive dose-response trend was suggested for the adenocarcinoma cell type and among directly interviewed women (two-tailed trend test; P = .31 continuous data analysis; P = .04 categorical data analysis), but not for other histologies or among those who had surrogate interviews.

Conclusions: The possibility of detecting a risk from indoor radon in this study was maximized by a) including a large number of nonsmoking women with high indoor occupancy, b) conducting a large number of radon measurements near the time of the diagnosis of cancer, and c) controlling for known causes of lung cancer. However, an association between lung cancer and the exposure to domestic levels of radon was not convincingly demonstrated.

Implications: The magnitude of the lung cancer risk from radon levels commonly found in U.S. dwellings appears low.

RELATED PUBLISHED ARTICLES (continued):

Hagan RA, Brownson RC, Simms SG, Chang JC, Gibson BB. Prostate cancer in Missouri: A trend analysis. Mo Med 1994;91(9):581–583.

Prostate cancer is currently the most common type of cancer among men in the United States. Among men, only lung cancer accounts for more annual cancer deaths. It is currently estimated that 1 in every 11 American men will develop prostate cancer in his lifetime. According to U.S. figures published by the American Cancer Society, approximately 200,000 new cases of prostate cancer will be diagnosed in 1994, and 38,000 men will die from the disease during the current year. Epidemiologic studies have yet to establish the cause(s) of prostate cancer. However, the geographical distribution of the disease worldwide suggests a strong link to environmental factors associated with developed industrial cultures.

This study presents a trend analysis of prostate cancer incidence and mortality in Missouri from 1986 to 1991. It charts changes in incidence rates by race and examines demographic distribution of the disease in Missouri population. Mortality trends are projected to the year 2000 and then compared to Missouri Department of Health objectives for the year 2000. Current concerns about the efficacy of screening and follow-up are briefly discussed.

Brownson RC, Alavanja MCR, Chang JC. Occupational risk factors for lung cancer among nonsmoking women: A case-control study in Missouri. Cancer Causes Control 1993;4:449–54.

Occupationally related risk of lung cancer among women and among nonsmokers has not been widely studied. A recently conducted population-based, case-control study in Missouri (United States) provided the opportunity to evaluate risk of lung cancer associated with several occupational factors. Incident cases (*n* = 429) were identified through the Missouri Cancer Registry for the period 1986 through 1991, and included 294 lifetime nonsmokers and 135 ex-smokers who has stopped at least 15 years prior to diagnosis or had smoked for less than one pack-year. Controls (*n* = 1,021) were selected through driver's license and Medicare files. Risk was elevated among women exposed to asbestos (ever: odds ratio [OR] = 3.5, 95 percent confidence interval [CI] = 1.2–10.0; >9 yrs: OR = 4.6, CI = 1.1–19.2) and pesticides (ever: OR = 2.4, CI = 1.1–5.6; >17.5 yrs: OR = 2.4, CI = 0.8–7.0). Risk also was elevated among dry cleaning workers (ever: OR = 1.8, CI = 1.1–3.0; >1.125 yrs: OR = 2.9, CI = 1.5–5.4). Occupational risks for lung cancer among women merit further study.

Davis JR, Chang JC, Brownson RC, Gibson BB. Prevention and control of melanoma skin cancer in Missouri. Mo Med 1993;90(5):227–30.

Melanoma skin cancer is currently the eighth most prevalent cancer in the United States. The most common forms are lentigo maligna melanoma, superficial spreading melanoma and nodular melanoma. Melanoma incidence rates have been increasing dramatically in the United States and many other parts of the world during the past 40 years. A comprehensive study has been advanced to explain the relative risks observed by various groups. Sun exposure (ultraviolet radiation) is believed to be the major risk factor for melanoma skin cancer. However, genetic susceptibility to sun related damage is also thought to be a contributing risk factor. The increasing trend in melanoma skin cancer incidence is attributed to life style changes such as more frequent sunny vacations, increased outdoor recreational activities and modifications in clothing. This study presents time trends in melanoma skin cancer mortality for Missouri residents and projects rates for the year 2000. It also examines demographic and geographic factors associated with increased risk in Missouri. Prevention and screening methods are discussed and opportunities for physician action are identified.

Chang JC, Brownson RC, Davis JR. Cancer risks among Missouri electrical workers. Annual Meeting of International Association of Cancer Registries, Hamburg, Germany 1990:108–18.

A series of case control studies of cancer in Missouri electrical workers was conducted. The Missouri Cancer Registry was used to study a total of 18,775 white male cancer cases including 547 cases identified as "electrical workers," diagnosed from 1984 through 1988. Odds ratios (OR) and 95% confidence intervals (CI) were calculated for specific sites. For each cancer site, the registrations for the other sites formed the control group.

Main findings by occupational classification include elevated risk for lymphoma (OR = 1.4; 95% CI = 1.0–2.1); Hodgkin's disease (OR = 1.2; 95% CI = 0.5–2.8); and no elevated risk of leukemia (OR = 0.9; 95% CI = 0.5–1.7) except for technicians, for whom an elevated leukemia risk (OR = 2.8; 95% CI = 1.0–7.2) was observed. The overall OR for lymphatic and hematopoietic cancers was 1.2 (05% CI = 0.9–1.6). However, if the cases were identified by industrial classification, slight elevations of risk were observed for lymphoma (OR = 1.3; 95% CI = 1.0–1.9); Hodgkin's disease (OR = 1.4; 95% CI = 0.7–2.7); leukemia (OR = 1.2; 95% CI = 0.7–1.8); and the combined leukemia-lymphoma group (OR = 1.2; 95% CI = 1.0–1.6).

Brownson RC, Chang JC, Davis JR, Wilkerson JC, Jackson-Thompson J. Breast cancer in Missouri: Staging, survival and mammography screening patterns. Mo Med 1990;87(10):753–56.

In this article, the authors describe stage at diagnosis, survival patterns and mammography screening patterns for breast cancer among Missouri females.

Brownson RC, Reif JS, Chang JC, Davis JR. An analysis of occupational risks for brain cancer. Am J Public Health 1990; 80(2):169–72.

We evaluated the risks of brain cancer in relation to employment history in a case-control study of 312 cases and 1,248 cancer controls. Subjects were identified through the Missouri Cancer Registry for the period 1984 through 1988. Job classification was based on data routinely abstracted from hospital records. Elevated risks were identified for certain white collar occupations: for men employed in engineering, the odds ratio (OR) = 2.1; 95% confidence interval (CI) = 0.4, 10.3; for social science professionals, the OR = 6.1; 95% CI = 1.5, 26.1. Among occupations with potential exposure to occupational carcinogens, increased risks were observed for men employed in agricultural crop production (OR = 1.5; 95% CI = 1.0, 2.4), printing and publishing (OR = 2.8; 95% CI = 1.0, 8.3), and brickmasons and tilesetters (OR = 2.5; 95% CI = 0.5,11.5). Most of the elevated brain cancer risks were due to astrocytic cancers, but the excess among agricultural workers occurred in other cell types. No increase in risk was noted for current cigarette smokers (OR = 0.9; 95% CI = 0.7, 1.5) or ex-smokers (OR = 1.0; 95% CI = 0.7, 1.5). This exploratory study indicates a need for further studies of occupational risks of brain cancer.

Chang JC, Simms SG, Davis JR, Brownson RC. Breast cancer incidence among women in Missouri. Mo Med 1989;86(12):809–14.

During the past decade, the incidence of breast cancer in Missouri women has apparently increased. As this study shows, however, this apparent rise is due to the early detection of localized cancers—those with higher cure rates. The implications of the findings are discussed.

Cancer Registry Enhancement Project (continued)

RELATED PUBLISHED ARTICLES (continued):

Brownson RC, Davis JR, Chang JC, DiLorenzo TM, Keefe TJ, Bagby JR. A study of the accuracy of cancer risk factor information reported to a central registry compared with that obtained by interview. Am J Epidemiol 1989;129(3): 616–24.

Sources of readily available data for cancer surveillance are frequently sought. To assess the validity of information on cancer risk factors that is routinely collected in conjunction with cancer incidence reporting, the authors completed interviews for 441 patients identified through the Missouri Cancer Registry from June 1986 to May 1987. Interviews elicited information on employment history, smoking and alcohol consumption. Data collected from interviews were compared with those previously reported to the Registry by participating hospitals. Exact agreements of three-digit US Census codes were 70% for occupation and 72% for industry. Concordance for never- versus ever-smoking status was 83%, and a high correlation (r = 0.93) was observed for level of smoking. Agreement on alcohol consumption was lower (65%), largely because of the presence of false negatives. Misclassification occurred in a random manner for occupational variables; however, differential misclassification was present for smoking and alcohol histories. Despite the limitations of registry-collected data, these findings suggest that cancer registries that obtain information on cancer risk factors may be suitable for exploratory studies, especially those involving occupational cancer surveillance.

Brownson RC, Devier JR, Phillips PE, Chang JC, Gibson BB, Schramm WF, Crellin JR, Carlson GM. Hemphill DD. Excess lung cancer in a Missouri lead mining district. Trace Substances in Environmental Health-XXI, University of Missouri–Columbia, 1987:3–12.

FEE FOR DATA:

A schedule of fees for data has not been established.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

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Division of Chronic Disease Prevention
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Communicable and Zoonotic Diseases

Missouri Department of Health rule 19 CSR 20-20.020 requires the following general communicable and zoonotic diseases to be reported to the Department of Health:

Anthrax
Botulism
Brucellosis
Campylobacter infections
Cholera
Cryptosporidiosis
E. coli O157:H7
Ehrlichiosis
Encephalitis, arthropod-borne
Giardiasis
Group A Streptococcal disease, invasive
Hantavirus
Hemolytic Uremic Syndrome, post-diarrheal
Hepatitis A
Hepatitis B, acute
Hepatitis non-A, non-B
Influenza
Kawasaki disease
Legionellosis
Leptospirosis
Listeria monocytogenes
Lyme disease
Malaria
Meningitis, aseptic
Meningococcal disease, invasive, including meningitis
Plague
Psittacosis
Reye Syndrome
Rocky Mountain spotted fever
Salmonella infections
Shigella infections
Toxic shock syndrome
Trichinosis
Tularemia
Typhoid Fever
Yersinia enterocolitica

The occurrence of any outbreak or epidemic of any illness or disease which may be of public health concern, including any illness in a food handler that is potentially transmissible through food is also reportable. Reports are usually received on the Disease Case Report (MO 580-0779) form found on pages A-9 to A-10 of the Appendix. The Bureau of Communicable Disease Control also gathers data on coccidioidomycosis, Hansen's disease, hepatitis C, *Streptococcus pneumoniae*, Streptococcal toxic shock syndrome and yellow fever. The bureau analyzes the information collected.

This passive disease surveillance information is compiled and transmitted weekly to the Centers for Disease Control and Prevention via the National Electronic Telecommunication System for Surveillance (NETSS). The passive surveillance system is a form of data collection in which health care providers initiate the reports and send them to the local public health agency. The reports are based upon a legislated and published list of diseases (as above) and a set of rules or regulations.

The Bureau of Communicable Disease Control also conducts active disease surveillance, which is an ongoing, weekly collection of disease information on established health status indicators or illnesses from designated health care providers and public health agencies. Active surveillance is initiated by the local public health agency and the aggregate data are used to demonstrate trends or identify potential undiagnosed health problems in a community. It is an early warning system that provides information for action.

Other types of surveillance conducted by the Bureau of Communicable Disease Control are focused study surveillance of a specific disease due to an outbreak or a disease of public health significance and validation studies to measure the sensitivity of the passive reporting system.

POLICY FOR RELEASE OF INFORMATION:

Patient level records are not public information, and may be shared only with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the Department of Health under section 192.067, RSMo.

Aggregate data at the county, district or state level for the years 1993–1997 are available upon request. Trend reports and demographic analysis of selected diseases are available as paper reports or in electronic form.

ITEMS IN DATABASE:

(Items in database from 1988 to the present)

Data Items for Passive Surveillance

When Updated
Case ID Number
Name
Address
Telephone Number
Health District
County Name
City
Census Tract*
Zip Code
Person Referring (physician, local health agency, hospital, lab, daycare, other)
Reporter Location Information
Demographics
- Sex
- Race
- Ethnicity
- Age
- Date of Birth

Clinical Data
- Onset Date
- Outbreak Associated
- Diagnosis Date
- Serogroup or Serotype

Case Status (confirmed, probable or suspect)

Data Items for Passive Surveillance

Laboratory Results
- Lab Test
- Lab Date
- Lab Name
- Lab Address

Epidemiologic Information
- Disease
- Date Reported to Health Department*
- Week of Report
- Date Sent to CDC
- Medical Record Number*
- Employed in High Risk Occupation
- Nursing Home
- Daycare
- Death
- Imported
- Need Investigation
- Requested Investigation Date
- Received Completed Investigation
- Investigated by
- Outbreak Type and Number
- Case Count
- Date Report Received at District*
- Date Report Received at Central Office*
- Nursing Home or Hospital Address and Name
- Nursing Home or Hospital Phone

Comments

*new fields added in 1996

Data Items for Active Surveillance

Disease
County
Site
Count
Week

RELATED PUBLISHED ARTICLES:

Marx HL, Kliethermes ME. 1996–97 Influenza summary. Missouri Epidemiologist 1997;19(4):14–15.

Fobbs M. Bureau of communicable disease control 1996 annual report. Missouri Epidemiologist 1997;19(3):4–7,29.

Fobbs M. 1996 Outbreaks of communicable disease. Missouri Epidemiologist 1997;19(3):8–9.

Satalowich FT. Tick-borne disease summary—1996. Missouri Epidemiologist 1997;19(3):10–12.

Bureau of Communicable Disease Control. Hepatitis A in southwestern Missouri. Missouri Epidemiologist 1997;19(1): 4–6,16.

RELATED PUBLISHED ARTICLES (continued):

Missouri Department of Health, Division of Environmental Health and Communicable Disease Prevention. Diseases of the gastrointestinal tract, Diseases of the nervous system, Hepatitis, Zoonotic diseases, Other reportable diseases and Diseases of low incidence. Reportable Diseases and Conditions in Missouri Biennial Report 1994–95:7–27, 55–71.

Angulo FJ, Tippen S, Sharp DJ, Payne BJ, Collier C, Hill JE, Barrett TJ, Clark RM, Geldreich EE, Donnell HD, Swerdlow DL. A community waterborne outbreak of salmonellosis and the effectiveness of a boil water order. Am J of Public Health 1997;87(4):580–84.

Objectives—A 1993 large waterborne outbreak of *Salmonella typhimurium* infections in Gideon, Mo, a city of 1100 with an unchlorinated community water supply, was investigated to determine the source of contamination and the effectiveness of an order to boil water.

Methods—A survey of household members in Gideon and the surrounding township produced information on diarrheal illness, water consumption and compliance with the boil water order.

Results—More than 650 persons were ill; 15 were hospitalized, and 7 died. Persons consuming city water were more likely to be ill (relative risk [RR] = 9.1, 95% confidence interval [CI] = 2.9, 28.4), and the attack rate increased with increased water consumption. *S. typhimurium* was recovered from samples taken from a city fire hydrant and a water storage tower. Persons in 31% (30/98) of city households had drunk unboiled water after being informed about the boil water order, including 14 individuals who subsequently became ill. Reasons for noncompliance included "not remembering" (44%) and "disbelieving" (25%) the order.

Conclusions—Communities with deteriorating water systems risk widespread illness unless water supplies are properly operated and maintained. Effective education to improve compliance during boil water orders is needed.

Ashford D, Borst M, Mack N. High incidence of meningococcal disease in southwest Missouri in 1995. Missouri Epidemiologist 1996;18(6):1–3.22.

Hinkle CJ. Estimating prevention of hepatitis A using distribution of immune globulin and the economic impact of intervention. Missouri Epidemiologist 1996;18(5):14–15.

Donelon I. 1995–96 Influenza summary. Missouri Epidemiologist 1996;18(4):1–2.

Fobbs M. Bureau of communicable disease control 1995 annual report. Missouri Epidemiologist 1996;18(3):1–4,35.

Fobbs M. Outbreaks of communicable disease in 1995. Missouri Epidemiologist 1996;18(3):6–7.

Satalowich FT. Tick-borne disease summary 1995. Missouri Epidemiologist 1996;18(3):14–18.

Stull D, Collier C. Hepatitis A in food establishments. Missouri Epidemiologist 1995;17(6):6.

Donelon I. 1994–95 Influenza summary. Missouri Epidemiologist 1995;17(4):4,7.

Masters EJ, Donnell HD. Lyme and/or Lyme-like disease in Missouri. Mo Med 1995;92(7):346–53.

Missouri patients who fulfill the strict CDC surveillance definition for Lyme disease have been reported in significant numbers since 1989, although there are no viable Missouri human cultures of *Borrelia burgdorferi*. The Missouri erythema migrans rashes are indistinguishable from those in other areas, and the clinical syndrome appears similar to Lyme disease nationally. The authors suspect atypical *B. burgdorferi*, and/or other *Borrelia* spirochetes of causing this clinical borreliosis syndrome.

Carson CA, Keller JM, McAdoo KK, Wang D, Higgins B, Bailey CW, Thorne JG, Payne BJ, Skala M, Hahn AW. Escherichia coli O157:H7 restriction pattern recognition by artificial neural network. J Clin Micro 1995;33(11): 2894–98.

An artificial neural network model for the recognition of *Escherichia coli* O157:H7 restriction patterns was designed. In the training phase, images of two classes of *E. coli* isolates (O157:H7 and non-O157:H7) were digitized and transmitted to the neural network. The system was then tested for recognition of images not included in the training set. Promising results were achieved with the designed network configuration, providing a basis for further study. This application of a new generation of computational technology serves as an example of its usefulness to microbiology.

Fobbs M. Bureau of communicable disease control 1994 annual report. Missouri Epidemiologist 1995;17(3):1–3,31.

Fobbs M. Outbreaks of communicable disease in 1994. Missouri Epidemiologist 1995;17(3):4–5,14.

RELATED PUBLISHED ARTICLES (continued):

Dodson DR, Crede P. Legionellosis associated with a whirlpool spa in St. Charles county, Missouri, October 1994. Missouri Epidemiologist 1995;17(2):8.

Satalowich FT. Tick-borne disease awareness. Missouri Epidemiologist 1995;17(2):1–6,19.

Skala M. E coli O157:H7 is an emerging pathogen in Missouri. Mo Med 1994;91(12):730–33.

Dramatic media reports of recent outbreaks of illness caused by *Escherichia coli* O157:H7 have drawn national attention to this emerging pathogen. In 1993, a widely publicized outbreak of over 500 culture-confirmed cases was traced to fast-food hamburgers in Washington, Idaho, Nevada and California. Closer to home, the first (and still the largest) reported waterborne outbreak of this disease occurred in Cabool, Missouri in 1989. That outbreak affected 243 people, of whom 32 were hospitalized, 2 had hemolytic uremic syndrome, and 4 died.

E. coli O157:H7 was added to the list of reportable diseases in Missouri in mid-1992, but its importance is still not widely recognized. This article reviews the results of state and national surveillance for the disease, and suggests methods for improving diagnosis and reporting.

Donelon I. Fifth disease: The mild mannered rash gains importance. Missouri Epidemiologist 1994;16(4):13,23.

Donelon I. Heading Off the Problem of Pediculosis. Missouri Epidemiologist 1994;16(4):14–15,23.

Fobbs M, Fuller Skala M. Bureau of communicable disease control 1993 annual report. Missouri Epidemiologist 1994;16(3):1–3,17.

Fobbs M, Fuller Skala M. 1993 Outbreaks of communicable disease. Missouri Epidemiologist 1994;16(3):4–5,11.

Satalowich FT. Tick-borne disease summary—1993. Missouri Epidemiologist 1994;16(3):20–22.

Donelon I. 1993–94 Influenza summary. Missouri Epidemiologist 1994;16(3):12,17.

Skala M. Waterborne salmonella outbreak in southeastern Missouri. Missouri Epidemiologist 1994;16(2):1–2,4.

Fobbs M. Isolation of Borrelia burgdorferi from rabbit ticks in southeast Missouri. Missouri Epidemiologist 1994;16(2):5.

Fobbs M. Laboratory testing for E. coli O157:H7 prior to the first year of reporting in Missouri. Missouri Epidemiologist 1994;16(1):1.

Huber M. Results of the Special Invasive Bacterial Infections Study, Missouri 1992. Missouri Epidemiologist 1994;16(1): 2–3.

Skala M. Hepatitis A decreased in 1993. Missouri Epidemiologist 1994;16(1):15.

Skala M. Influenza update. Missouri Epidemiologist 1994;16(1):14.

Masters EJ, Donnell HD, Fobbs M. Missouri Lyme disease: 1989 through 1992. J Spirochetal Tickborne Dis 1994;1(1): 12-13.

The existence and characteristics of Lyme disease in Missouri are being discussed. Centers for Disease Control (CDC) surveillance criteria are being used and symptom patterns of cases reported nationally and in Missouri are compared. The results show that Missouri Lyme disease is consistent with a true borreliosis.

Missouri Department of Health, Division of Environmental Health and Epidemiology. Diseases of the gastrointestinal tract, Diseases of the nervous system, Hepatitis, Zoonotic diseases, Other reportable diseases and Diseases of low incidence. Reportable Diseases and Conditions in Missouri Biennial Report 1992–93:7–20,45–63.

Fobbs M, Fuller Skala M. Bureau of communicable disease control 1992 annual report. Missouri Epidemiologist 1993;15(4):1–3.

Fobbs M, Fuller Skala M. 1992 Communicable disease and nosocomial outbreaks. Missouri Epidemiologist 1993; 15(4):4–5.

RELATED PUBLISHED ARTICLES (continued):

Adams WG, Kinney JS, Schuchat A, Collier CL, Papasian CJ, Kilbride HW, Riedo FX, Broome CV. Outbreak of early onset group B streptococcal sepsis. Pediatr Infect Dis J 1993;12(7):565–70.

During January and August, 1990, 23 cases of early onset Group B *Streptococcus* (GBS) disease occurred in a Kansas City, MO, hospital with an attack rate of 14/1000 live births for 1988 through 1989. Case infants were compared with controls matched by birth weight, race, maternal age and day of delivery and to a second group of infants of mothers colonized with GBS to identify risk factors and consider intervention strategies during the outbreak. The presence of multiple serotypes among the invasive strains suggested that the outbreak was not caused by a common source. Case mothers were more likely than control mothers to have chorioamnionitis, intrapartum fever or rupture of membranes >12 hours, and premature case infants were more likely to have a history of rupture of membranes before onset of labor. Multiparous mothers of case infants were more likely to have history of spontaneous abortion (odds ratio, 6.7; 95% confidence interval, 1.0 to 45.9). No single factor could explain the increase in GBS disease. If intrapartum antibiotic prophylaxis had been used for selected GBS carriers based on presence of either rupture of membrane >12 hours, intrapartum maternal fever or preterm labor, 7.4% of all deliveries would have received antibiotics and 73% of cases could potentially have been prevented. We conclude that identification of colonized mothers with perinatal risk factors and use of intrapartum antibiotics could be expected to prevent substantial disease during an outbreak of early onset GBS disease.

Satalowich FT. Tick-borne disease summary—1992. Missouri Epidemiologist 1993;15(4):10–12.

Fobbs M. Lyme disease in Missouri? Missouri Epidemiologist 1993;15(2):8–9,23.

Collier C. The process of reaching statewide consensus on prevention and control of methicillin resistant staphylococcus aureus (MRSA) in long term care facilities (LTCF's). Presentation at American Public Health Association Prevention 93, April 17–20, 1993, St. Louis, MO.

Skala M, Marx HL. Campylobacter infection in poultry processing workers, 1991–93. Missouri Epidemiologist 1993;15(2):18,22.

Bureau of Communicable Disease Control. Influenza isolates 1992/93 season predominantly type B. Missouri Epidemiologist 1993;15(1):15.

Skala M. Hepatitis A incidence, 1992. Missouri Epidemiologist 1993;15(1):14–15.

Friedman C. Community-wide hepatitis A epidemic in St. Louis. Missouri Epidemiologist 1993;15(1):13.

Skala M. Foodborne outbreaks associated with catered meals, 1991. Missouri Epidemiologist 1992;14(5):1–4.

Fobbs M, Skala M. Waterborne hepatitis A associated with a church and school. Missouri Epidemiologist 1992; 14(5):6–8.

Huber M. Group B Streptococcus bacteriuria in Missouri. Missouri Epidemiologist 1992;14(5):16–17.

Donnell HD. Hepatitis A currently epidemic in Missouri. Missouri Epidemiologist 1992;14(5):22.

Fobbs M, Fuller Skala M. Bureau of communicable disease control 1991 annual report. Missouri Epidemiologist 1992;14(4):6–8.

Fobbs M, Fuller Skala M. 1991 Communicable disease and nosocomial outbreaks. Missouri Epidemiologist 1992; 14(4):4–5.

Donnell HD. The enigma of Lyme disease in Missouri. Mo Med 1992;89(10):714–16.

Lyme disease was made a reportable disease in Missouri in 1989. There were 108 cases reported in 1989 which met the surveillance criteria, 205 in 1990 and 207 in 1991. The dilemma in Missouri relates to the fact that, in what are generally understood to be "known epidemic areas," the Lyme spirochete is vectored by *Ixodes dammini* which has not been found in Missouri.

Satalowich FT. Tick-borne disease summary—1991. Missouri Epidemiologist 1992;14(4):12–13.

Donelon I. 1991–92 Influenza summary. Missouri Epidemiologist 1992;14(3):5.

RELATED PUBLISHED ARTICLES (continued):

Fobbs M. Investigation of erythema migrans rash in Missouri. Missouri Epidemiologist 1992;14(3):9.

Marx HL, Fuller Skala M. An outbreak of diarrheal illness associated with a dunking booth. Missouri Epidemiologist 1992;14(2):4–6.

Fobbs M. E. coli 0157:H7 reporting in Missouri. Missouri Epidemiologist 1992;14(1):13.

Fobbs M. Hepatitis A trends in Missouri 1991. Missouri Epidemiologist 1992;14(1):13.

Bureau of Communicable Disease Control. Outbreak of Salmonella infantis associated with a wedding. Missouri Epidemiologist 1992;14(1):14–15.

Fobbs M. Lyme disease investigation in southeast Missouri. Missouri Epidemiologist 1992;14(1):117–18.

Skala M. Special surveillance for invasive bacterial diseases. Missouri Epidemiologist 1992;14(1):19.

Swerdlow DL, Woodruff BA, Brady RC, Griffin PM, Tippen S, Donnell HD, Geldreich E, Payne BJ, Meyer A, Wells JG, Greene KD, Bright M, Bean NH, Blake PA. A waterborne outbreak in Missouri of Escherichia coli O157:H7 associated with bloody diarrhea and death. Ann Intern Med 1992;117(10):812–19.

Objective—To describe and determine the source of a large outbreak of *Escherichia coli* O157:H7 (ECO157) infections in Missouri.

Design—A case-control study and a household survey.

Setting—A small city in a rural Missouri township that had an unchlorinated water supply.

Patients—Case patients were residents of or visitors to Burdine Township with bloody diarrhea or diarrhea and abdominal cramps occurring between 15 December 1989 and 20 January 1990.

Measurements—*Escherichia coli* O157 was isolated from 21 stool specimens. All isolates were resistant to sulfisoxazole, tetracycline and streptomycin; produced Shiga-like toxins I and II; and had one 60-megadalton plasmid.

Results—Among the 243 case patients, 86 had bloody stools, 32 were hospitalized, 4 died and 2 had the hemolytic uremic syndrome. In the case-control study, no food was associated with illness, but ill persons had drunk more municipal water than had controls (P=0.04). The survey showed that, during the peak of the outbreak, bloody diarrhea was 18.2 times more likely to occur in persons living inside the city and using municipal water than in persons living outside the city and using private well water (P=0.001). Shortly before the peak of the outbreak, 45 water meters were replaced, and two water mains ruptured. The number of new cases declined rapidly after residents were ordered to boil water and after chlorination of the water supply.

Conclusions—This was the largest outbreak of ECO157 infections, the first due to a multiply resistant organism, and the first shown to be transmitted by water. System-wide chlorination as well as hyperchlorination during repairs might have prevented this outbreak. Both bloody and nonbloody diarrhea may be common manifestations of this infection, which is probably underdiagnosed because of the failure of routine stool cultures to identify the organism. Cities with deteriorating water systems using untreated water risk widespread illness from contaminated drinking water.

Masters EJ, Rawling J, Fobbs M, Donnell HD. Epidemiology of erythema migrans in Missouri. Abstract [351] In Programs and Abstracts from the 5th International Conference on Lyme Borreliosis (Arlington, VA) 1992.

Missouri Department of Health, Division of Environmental Health and Epidemiology. Diseases of the gastrointestinal tract, Diseases of the nervous system, Hepatitis, Zoonotic diseases, Other reportable diseases and Diseases of low incidence. Reportable Diseases and Conditions in Missouri Biennial Report 1990–91:7–18,37–51.

Fobbs M. Bureau of communicable disease control 1990 annual report. Missouri Epidemiologist 1991;13(5):3–6.

Fobbs M. 1990 Communicable disease and nosocomial outbreaks. Missouri Epidemiologist 1991;13(5):5–6.

Satalowich FT. Tick-borne disease summary—1990. Missouri Epidemiologist 1991;13(3):4–5.

Fobbs M. Diarrheal illness associated with blue-green algae. Missouri Epidemiologist 1991;13(3):9–11.

Bright (Skala) M, Donnell HD. Hepatitis A outbreak related to a restaurant. Missouri Epidemiologist 1991;13(2):12–13.

Fobbs M. Lyme disease update. Missouri Epidemiologist 1991;13(2):4–5.

RELATED PUBLISHED ARTICLES (continued):

Office of Epidemiology. 1990 Annual report on control of communicable disease in Missouri. Missouri Epidemiologist 1991;13(2):6.

Donelon I. Influenza isolates 1990/91 season predominantly type B. Missouri Epidemiologist 1991;13(1):9.

Gibson V, Giedinghagen D, Persley C. Shigella outbreak in a restaurant. Missouri Epidemiologist 1990;12(5):8.

Fobbs M. Annual communicable disease report—1989. Missouri Epidemiologist 1990;Special Annual Summary—1989:1–2.

Bureau of Veterinary Public Health. Rocky Mountain spotted fever—1989. Missouri Epidemiologist 1990;Special Annual Summary—1989:6.

Bureau of Veterinary Public Health. Tularemia case reports down in 1989. Missouri Epidemiologist 1990;Special Annual Summary—1989:6.

Murgueytio P. Outbreak of foodborne illness due to Clostridium perfringens at a St. Louis, Missouri school. Missouri Epidemiologist 1990;12(4):2.

Fuller Bright M, Donelon I. Invasive Haemophilus influenzae disease surveillance and guidelines for antibiotic prophylaxis. Missouri Epidemiologist 1990;12(4):3–4.

Satalowich FT. Ehrlichiosis. Missouri Epidemiologist 1990;12(2):4.

Bureau of Communicable Disease Control. Lyme Borreliosis in Missouri. Missouri Epidemiologist 1990;12(2):8.

Bureau of Communicable Disease Control. 1989–90 Influenza update. Missouri Epidemiologist 1990;12(1):4.

Tippen S, Brady R, Donnell D, Meyer A, Blank E. Aquarium-associated Plesiomonas shigelloides infection in a child. Missouri Epidemiologist 1989;11(5):1–2.

Dodson DR, Sentinel active surveillance system. Missouri Epidemiologist 1989; Special Annual Summary for 1988:1.

Bureau of Communicable Disease Control. 1988 Year End Review of Selected Communicable Diseases. Missouri Epidemiologist 1989;Special 1988 Annual Summary:4–5.

Donelon I. Head lice: Pediculus humanus capitis. Missouri Epidemiologist 1989;11(3):3–4.

Satalowich FT. Ticks in Missouri. Missouri Epidemiologist 1989;11(1):1–6.

Bureau of Communicable Diseases. Waterborne illness outbreak at golf course. Missouri Epidemiologist 1989; 11(2):2–3.

Bureau of Communicable Diseases. 1988–89 Influenza season summary. Missouri Epidemiologist 1989; 11(2):insert.

Brady R, Satalowich FT. Egg-associated Salmonella enteritidis. Missouri Epidemiologist 1988;10(6):1–2.

Bright M. Antimicrobial-resistant shigellosis. Missouri Epidemiologist 1988;10(2):4–5.

RELATED PUBLISHED ARTICLES (continued):

Collier C, Miller DP, Borst M. Community hospital surgeon-specific infection rates. Infect Control 1987;8(6):249–54.

A one-year prospective study of surgeon-specific nosocomial infection rates was done in two community hospitals. Hospital A (93 beds) and Hospital B (158 beds) have nearly identical surgical staffs. Unified criteria for the diagnosis of infections, methods of data collection and coding were used. Data were processed with an IBM 370 computer using Statistical Analysis System (SAS). Each surgeon received semiannual reports of 1) overall infection rate by site, 2) number of surgical wound infections by wound class and type of procedure, 3) pathogens for each deep and incisional infection, and 4) quarterly wound infection rates by wound class. Analysis of reports revealed high Class I surgical wound infection rates for both general and orthopedic surgeons. One person in each group had inordinately high infection rates. These data serve as an objective incentive to reduce surgical wound infections, identify individual problems, and suggest surgical privileges be evaluated by performance.

Bureau of Communicable Diseases. Hepatitis A in Missouri. Missouri Epidemiologist 1987;9(6):1.

Bright M. Hepatitis A outbreaks in Missouri. Missouri Epidemiologist 1987;9(5):5.

Bureau of Communicable Diseases. Influenza cases confirmed. Missouri Epidemiologist 1987;9(1):4.

Sitze SL. Toxic shock syndrome and bacterial meningitis/bacteremia studies, 1986. Missouri Epidemiologist 1987;9(1):5

FEE FOR DATA:

At the present time, there is no charge for this data.

CONTACTS FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

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Division of Environmental Health and
Communicable Disease Prevention
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Deaths

Vital statistics data have long been Missouri's primary source of health information. Since 1911, the Department of Health has been the official state registrar for death certificates. This long history of collection and recording makes vital statistics the most complete and probably the most accurate of all the sources for Missouri health data. In recent years, the Department of Health and the Missouri Center for Health Statistics (MCHS) have worked to improve the accuracy of vital statistics data and to automate processing of vital records at the original source.

Death certificate data can help users to assess the status of health, evaluate the effectiveness of programs and make population estimates.

In 1973, MCHS contracted to provide Missouri death certificate data on tape to the National Center for Health Statistics (NCHS) in order to enhance the quality of both Missouri's and the national vital statistics data. The contract also eliminated the duplication of Missouri data being processed at the national level. Under provisions of the contract, beginning with 1972 data, Missouri revised its coding and keypunching instructions and the editing program to assure that Missouri data conform with national standards.

Missouri death certificates were revised in 1978 to comply with changes in the national standard certificate.

In 1979, Missouri received additional federal funding for its contribution to the National Death Index. Some additional items were added to the monthly death tape already sent to NCHS.

In 1989, Missouri again revised the death certificate to comply with the new United States standard certificate. Several new items were added and some deleted or changed.

In 1997, the format of the death certificate was modified slightly to an 8½" x 11" size for ease in copying. The Certificate of Death (MO 580-2211) form can be found on pages A-11 to A-12 of the Appendix.

The Center for Health Information Management and Epidemiology (CHIME) officially closes the vital statistics data file on April 15 of each year, and data tapes usually are available for analysis by June. From the vital statistics data, CHIME prepares an annual report of the vital statistics for Missouri, which normally is available for distribution in October. CHIME also publishes Missouri Monthly Vital Statistics, a monthly bulletin-type report that provides provisional vital statistics data to the public and users of such data.

POLICY FOR RELEASE OF INFORMATION:

A listing of persons who die on a particular date may be disclosed upon request, but no information other than the name and the date of each death shall be disclosed. For information on the release of confidential data, see the Policy and Procedures for Release of Vital Records Information found on pages 7–8.

DEATH ITEMS ON TAPE:

(Source Document: Certificate of Death)

Data Items	Years Available
Certificate Number	1968–present
Record Indicator	1968–present
Recorded Area:	
State	1968–present
County	1968–present
City	1968–present
Region	1972–present
Place of Recording	1972–present
State of Birth	1968–present

Data Items	Years Available
Residence Area:	
State	1968–present
County	1968–present
City	1968–present
City Limits Indicator	1972–present
Region	1972–present
Cause of Death	
Fifth digit (ICD-9 Code)	1968–present

Deaths (continued)

DEATH ITEMS ON TAPE (continued):

Data Items	Years Available
Selected Significant Conditions:	
First Condition	1968–present
Second Condition	1972–present
Attendant Type	1968–present
Attendant Identification*	1972–present
Date of Birth (MMDDYY)	1968–present
Sex	1968–present
Accident Type	1968–present
Accident Location:	
State	1968–present
County	1968–present
City	1968–present
Date of Death (MMDDYY)	1968–present
Race	1968–present
Age at Death	1968–present
Marital Status	1968–present
Autopsy	1968–present
Registrar's Pay	1968–present
Name	1968–present
Address	1972–present
Zip Code	1972–present
File Date:	
Month	1989–present
Day	1989–present
Week	1972–present
Year	1972–present
Source	1972–present
Date Updated (MMYY)	1972–present
Change Codes	1972–present

Data Items	Years Available
Social Security No.*	1978–present
Location Code for Hospital Deaths	1978–present
Armed Forces	1978–present
Birth Certificate No. (if less than 1 year of age)	1978–present
Decedent's Family Name	1979–present
Century of Birth	1979–present
Century of Death	1979–present
Industry	1983–present
Occupation	1983–present
City of Birth	1989–present
County of Birth	1989–present
Surviving Spouse Name	1989–present
Residence Census Tract (St. Louis City and County Only)	1975–present
Residence Location Years Code	1989–present
Hispanic Origin Code	1989–present
Education Code	1989–present
Burial/Cremation Code	1989–present
Funeral Facility Number	1989–present
Pregnancy Indication Code	1989–present
Autopsy Findings Used Code	1972–1978, 1989–present
Date of Injury (MMDDYY)	1989–present
Hour of Injury	1989–present
Alcohol Related Injury	1989–present
Injury at Work	1989–present
Hour of Death	1989–present
Decedent's Other Name	1972–present

*Confidential information not released on tape.

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
	Missouri Monthly Vital Statistics This monthly report provides provisional data on births, deaths, marriages and dissolutions of marriage. Each issue features a topic of interest on the "Focus" page.	Monthly	No Charge
	Missouri Vital Statistics (Annual Report) Published annually, this publication reports the official vital statistics for Missouri. Data from the report are available from 1911 to date, although full copies are only available from 1968. Designed as a reference document, the publication features 43 tables on births, deaths, marriages, dissolutions of marriage and induced abortions. The report format was revised in 1979 and 1989.	1968–present	No Charge

RELATED PUBLISHED ARTICLES:

Mack NE, Donnell HD, Schramm WF, Stockbauer JW, Skala M. Infectious disease mortality in Missouri—1980 to 1995. Missouri Epidemiologist 1997;19(5):1–4.

Center for Health Information Management and Epidemiology. Infectious disease mortality trends. Missouri Monthly Vital Statistics 1997;30(12).

Deaths (continued)

RELATED PUBLISHED ARTICLES (continued):

Center for Health Information Management and Epidemiology. Trends in cancer mortality. Missouri Monthly Vital Statistics 1996;30(10).

State Center for Health Statistics. Leading causes of death by gender. Missouri Monthly Vital Statistics 1995;29(9).

State Center for Health Statistics. Missouri firearm-related deaths. Missouri Monthly Vital Statistics 1995;29(8).

State Center for Health Statistics. 1993 Elderly mortality increase not related to flood. Missouri Monthly Vital Statistics 1994;28(10).

State Center for Health Statistics. Life expectancy in Missouri. Missouri Monthly Vital Statistics 1994;28(1).

State Center for Health Statistics. Increased diabetes mortality associated with change in death certificates. Missouri Monthly Vital Statistics 1994;27(11).

State Center for Health Statistics. Child abuse and neglect deaths reported by the child fatality review project. Missouri Monthly Vital Statistics 1993;27(9).

State Center for Health Statistics. The census of fatal occupational fatalities. Missouri Monthly Vital Statistics 1993;27(8).

State Center for Health Statistics. Excess mortality from nine chronic diseases in Missouri: 1979–1991. Missouri Monthly Vital Statistics 1993;27(1).

State Center for Health Statistics. Differences in mortality by race. Missouri Monthly Vital Statistics 1992;25(11).

State Center for Health Statistics. Heart disease deaths in Missouri. Missouri Monthly Vital Statistics 1991;25(5).

State Center for Health Statistics. New Missouri death certificates. Missouri Monthly Vital Statistics 1990;24(4).

State Center for Health Statistics. Pneumonia and influenza deaths. Missouri Monthly Vital Statistics 1990;23(12).

State Center for Health Statistics. Diabetes deaths in Missouri. Missouri Monthly Vital Statistics 1989;23(8).

FEE FOR DATA:

There is an assessed charge of $10 per certificate. The fee for data requiring computer programming will include a $21 file access charge, $30 per hour research analyst time and $2.50 postage and handling. For further details on other charges, see the Fee Policy on pages 11–13.

CONTACT FOR DATA OR ADDITIONAL INFORMATION:

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Center for Health Information Management
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Missouri Department of Health
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Jefferson City, MO 65102-0570

Ph: (573) 751-6278
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HIV/AIDS

Missouri Department of Health rule 19 CSR 20-20.020 requires reporting of all confirmed cases of human immunodeficiency virus (HIV) infection, acquired immunodeficiency syndrome (AIDS) and CD-4 lymphocyte counts on persons with HIV infection. Infection with HIV is clinically characterized by a debilitation of a person's immune system. This debilitation can result in development of opportunistic infections. Persons can be diagnosed with HIV infection through clinical or laboratory diagnosis. Persons can be diagnosed with AIDS either clinically or immunologically. Clinical diagnosis is based on the occurrence of one or more of the 26 AIDS-defining opportunistic infections. A person is diagnosed immunologically if his/her CD-4 lymphocyte count falls below 200 cells/microliter. All HIV and AIDS case definitions are provided by the Centers for Disease Control and Prevention (CDC).

Reports are usually received on the following forms: Physician's Confidential Report of HIV Infection (MO 580-141) found on pages A-13 to A-14 of the Appendix, the Acquired Immunodeficiency Syndrome (AIDS) Adult Confidential Case Report (CDC 50.42A) found on pages A-15 to A-16 of the Appendix, and the Pediatric HIV/AIDS Confidential Case Report (CDC 50.42B) found on pages A-17 to A-20 of the Appendix.

The primary statewide (and national) database for all HIV/AIDS reporting is the HIV/AIDS Reporting System (HARS). HARS is CDC-provided software used for local project areas (i.e., St. Louis City Department of Health and Hospitals, Kansas City Health Department) to report case information to the Missouri Department of Health (DOH), and subsequently to CDC. HARS is also utilized to run statistical reports for such entities as local health agencies, community planning partners and the general public. HARS produces two registries: HIV infection and AIDS. Persons with HIV infection, once diagnosed with AIDS, are removed from the HIV infection registry and added to the AIDS registry. This system avoids duplicative case counting and better assesses the epidemiology of more recently HIV-infected individuals.

POLICY FOR RELEASE OF INFORMATION:

Data on individuals with either HIV infection or AIDS can be released by name or in aggregate statistical format, depending on the individual or entity requesting the information. All data are released according to section 191.656, RSMo. Specific policies for release of HIV/AIDS data are found in the *HIV/AIDS Surveillance Security and Confidentiality Manual.*

Only staff directly involved in HIV and AIDS surveillance activities have access to complete patient registries.

Statistical data can be released to such entities as local health agencies, community planning partners, health care providers and the general public in aggregate format. However, in some cases due to concerns that release of certain small numbers (termed small cell data) may indirectly identify a patient (e.g., release of risk and race in low prevalence and low population counties), data may be released in an alternate format (e.g., less than five cases, less than ten cases). The release of such data is at the discretion of Kurt Kleier, Program Manager, Epidemiology Services.

Aggregate HIV/AIDS data are used for:

- Health education
- Media dissemination
- Preparing grant applications
- Providing general information

HIV/AIDS (continued)

ITEMS IN DATABASE:

(HARS provides AIDS data from 1982 to the present, HIV data from 1987 to the present and in some instances record HIV testing prior to 1987.)

Data Items

Name
Demographic Information
(i.e., age, race, sex, ethnicity)
Location of Diagnosis (i.e., zip code)
Date of diagnosis (i.e., month and year)
Type of Facility of Diagnosis
(e.g., private physician, hospital inpatient, hospital outpatient, public funded HIV counseling and testing site)
Risk Information (i.e., sex with male, sex with female, intravenous drug use)

Data Items

Specific Clinical Information
(i.e., diagnostic testing history, CD-4 lymphocyte count history, opportunistic infection history)
Death Information
Pregnancy History
Information Specifically Related to Perinatal Infection (including all information above in addition to mother's risk history)

AVAILABLE PUBLICATIONS:

Publication Number	Report Title and Summary	Date	Publication Cost
	HIV/STD KWIK Facts Yearly epidemiologic profile of STD and HIV disease in Missouri—available in April of each year	1996 to present	No Charge
	HIV/STD Statistics Quarterly publication available in March, June, September and December of each year	1994 to present	No Charge

RELATED PUBLISHED ARTICLES:

Meyerson B, Kleier KM, Hamm RH. Sexually transmitted diseases and HIV - 1996. Missouri Epidemiologist 1997;19(3)22–29.

Missouri Department of Health, Division of Environmental Health and Communicable Disease Prevention. Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS). Reportable Diseases and Conditions in Missouri Biennial Report 1994–95:43–45.

Hamm RH. HIV infection in childbearing women in Missouri: Results of the survey of childbearing women 1991–94. Missouri Epidemiologist 1996;18(2):15–17, 20.

Meyerson B, Elliott J, Hamm R. Sexually transmitted diseases and HIV - 1995. Missouri Epidemiologist 1996;18(3): 24–27.

Meyerson B, Hamm R. Development of a policy to reduce perinatal HIV transmission in Missouri. Missouri Epidemiologist 1995;17(5);14–15.

Meyerson B, Hamm RH. Sexually transmitted diseases and HIV - 1994. Missouri Epidemiologist 1995;17(3):22–26.

Watkins W. 1993 HIV/AIDS Annual Report. Missouri Epidemiologist 1994;16(3):8–9.

Hamm RH, Donnell HD, Watkins W. An update on the epidemiology of AIDS in Missouri. Mo Med 1994;91(3):132–36.
It has been 13 years since the initial report from the Centers for Disease Control and Prevention (CDC) describing the condition that came to be known as the acquired immunodeficiency syndrome (AIDS). Because of the public health significance of the AIDS epidemic, an elaborate national surveillance system, involving CDC along with state and local health departments, came to be established. This surveillance system now provides detailed information about the epidemiology of AIDS in this country.

HIV/AIDS (continued)

RELATED PUBLISHED ARTICLES (continued):

At the national level, through September 1993, 339,250 cases of AIDS have been reported to CDC; 204,390 of these individuals have died, for a case-fatality rate of 60.2%. Human immunodeficiency virus (HIV) infection/AIDS is now the leading cause of death in American men aged 25–44, and the fourth leading cause of death for women in this age group. The AIDS epidemic continues to disproportionately affect minorities. For blacks, the cumulative incidence rate is approximately 3.7 times that of whites; for Hispanics it is approximately 2.7 times that of whites. The majority of AIDS cases nationally are attributable to transmission of HIV among men who have sex with other men. However, the annual incidence of AIDS is currently rising faster among women than among men, and AIDS incidence is increasing more rapidly among persons who are reported to have acquired their infection through heterosexual contact than among persons in other exposure categories. Along with the increase in the number of cases in women, there has been a corresponding increase in the number of pre- or perinatally-acquired cases in children.

In Missouri, AIDS has had a similar significant impact in terms of morbidity and mortality. The remainder of this report will summarize the epidemiology of AIDS in Missouri from 1982, when the first case was reported to the Missouri Department of Health (DOH), through mid-January 1994.

Missouri Department of Health, Division of Environmental Health and Epidemiology. HIV/AIDS (Human Immunodeficiency Virus, Acquired Immunodeficiency Syndrome). Reportable Diseases and Conditions in Missouri Biennial Report 1992–93:34–36.

Missouri Department of Health, Bureau of AIDS Prevention. Bureau of AIDS Prevention - 1992 Report. Missouri Epidemiologist 1993;15(4):6–9.

Gipson K. Expansion of CDC's AIDS surveillance case definition increases Missouri's case numbers. Missouri Epidemiologist 1993;15(3):1–2.

Gipson K. CD4+ cell counts required for CDC reporting. Missouri Epidemiologist 1993;15(2):3.

Matheis C. TB and HIV infection simultaneously in Missouri patients. Missouri Epidemiologist 1993;15(3):17.

Hamm R, Gipson K. The first decade of AIDS in Missouri. Missouri Epidemiologist 1993;15(3):20–25, 27.

Voorhees J. HIV in Women. Missouri Epidemiologist 1993;15(3):26–27.

Hagar-Mace L. HIV/AIDS in rural Missouri. Missouri Epidemiologist 1993;15(2):10–11, 23.

Missouri Department of Health, Bureau of AIDS Prevention. Bureau of AIDS Prevention - 1991 Report. Missouri Epidemiologist 1992;14(4):15.

Scott D. The completeness of HIV/AIDS surveillance in Missouri. Missouri Epidemiologist 1992;14(3):12–13.

Missouri Department of Health, Division of Environmental Health and Epidemiology. HIV/AIDS (Human Immunodeficiency Virus, Acquired Immunodeficiency Syndrome). Reportable Diseases and Conditions in Missouri Biennial Report 1990–91:30–32.

Missouri Department of Health, Bureau of AIDS Prevention. Bureau of AIDS Prevention - 1990 Report. Missouri Epidemiologist 1991;13(5):1–2.

Finley D. AIDS knowledge, attitude, belief and behavior. Missouri Epidemiologist 1991;13(4):6–7.

Missouri Department of Health, Bureau of AIDS Prevention. Bureau of AIDS Prevention - 1989 Year-End Report. Missouri Epidemiologist 1990;Special Annual Summary—1989:7.

Missouri Department of Health, Bureau of AIDS Prevention. AIDS surveillance. Missouri Epidemiologist 1989;Special AIDS Issue:4.

Malone B. Tuberculosis and the acquired immunodeficiency syndrome. Missouri Epidemiologist 1988;10(2):1–2.

HIV/AIDS (continued)

FEE FOR DATA:

Data are provided free of charge.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

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MOCARES Data for HIV/AIDS Care

The MOCARES data system has been used by the Bureau of HIV/AIDS Care and Prevention Services since approximately 1992 to collect information about client service plans, to generate prior authorization forms for Medicaid AIDS Waiver Services and to track financial expenditures authorized for Medicaid services by HIV/AIDS service coordinators.

A typical client enrollment involves entry into 6–15 MOCARES input screens. (Clients eligible for Medicaid need more input screens). Additional input is needed if a client accesses additional programs administered by the Bureau of HIV/AIDS Care and Prevention Services at a later date.

The data are stored in a mainframe computer maintained by the Missouri Department of Social Services. It is in EPIC format, normally accessed using the COBOL programming language. Information retrieval requires requesting specific reports through the Department of Health's Office of Information Systems.

POLICY AND PROCEDURE FOR RELEASE OF DATA:

The patient level records are not public information, and can only be released on a case by case basis in accordance with the Department of Health's confidentiality policy and the provisions of section 191.656, RSMo.

The aggregate statewide data on the number of clients served, and client race, sex and age are used by the Bureau of HIV/AIDS Care and Prevention Services for reports to funding sources and for public information.

ITEMS IN DATABASE:

(Items in database for 1992 to the present.)

Data Items	Data Items
Unique Client Identifying Number	Marital Status
Name	Address
Guardian	Physician Name
Birth Date	Provider Agencies
Social Security Number	Financial Information
Enrollment Date	Insurance Information
Gender	Service Coordinator
Race	Medical History

FEE FOR DATA:

There are no fees for authorized access to the MOCARES system data.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

Dr. Marion Warwick
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Missouri Department of Health
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Patient Abstracts

The Department of Health started collecting hospital discharge data in 1963 using a keysort card system. These data were converted to tape but were never adequately edited.

The Cooperative Health Statistics System contract made it possible for the Missouri Center for Health Statistics to update the hospital discharge collection procedures in 1975 by instituting a fully computerized data system called the Missouri Hospital Discharge Data Program. The new system collected the Uniform Hospital Discharge Data set.

From 1975 to 1977, about 41 percent of the 165 short-term, non-federal hospitals in Missouri participated in the Missouri Hospital Discharge Data Program. To augment the program's data file, the Missouri Center for Health Statistics contracted with another 21 percent of the state's hospitals which participated in a Professional Activities Study program operated by the Commission on Professional and Hospital Activities at Ann Arbor, Michigan. Data available from the Missouri Hospital Discharge Data Program's combined sources represented about half of the total yearly patient discharges from Missouri hospitals.

In January 1977, the Missouri Hospital Discharge Data Program system became fully operational within the Department of Health. During this time the Missouri Center for Health Statistics contracted with the Iowa Hospital Association to produce patient discharge reports for the participating hospitals. These reports—generated monthly, semiannually and annually—were based on data collected from hospitals on their discharged patients and served an important management function by providing the hospitals with information about the age, sex, diagnosis, procedure and length of stay characteristics of their patients.

In 1978, operation of the discharge program was assumed by the Missouri Health Data Corporation. The Missouri Health Data Corporation operated both the Professional Standards Review Organization data system and its own hospital discharge data collection system. In addition, it purchased data from the Commission on Professional and Hospital Activities, from other commercial data collection agencies and from hospitals capable of producing their own electronic data tapes. The Missouri Center for Health Statistics obtained from the Missouri Health Data Corporation the data from the various abstracting systems.

The Hospital Industry Data Institute, a unit of the Missouri Hospital Association, replaced Missouri Health Data Corporation in 1985. Hospital Industry Data Institute collected the hospital discharge data through 1992. The data were loaned to the Missouri Center for Health Statistics for research purposes. **Requests for 1985–1992 data must be addressed to the Hospital Industry Data Institute, Missouri Hospital Association, 4712 Country Club Drive, Jefferson City, MO 65109, Ph: (573) 893-3700.**

In 1993, following the enactment of sections 192.665–667, RSMo, the Patient Abstract System was implemented. It includes some outpatient data as well as inpatient data. The outpatient data include emergency room patients, observation patients, patients receiving invasive procedures on an outpatient basis, as well as patients receiving certain specified diagnostic procedures. The data collected since 1993 belong to the Missouri Center for Health Statistics. Since January 1, 1994, ambulatory surgical centers have also been required to report. These records are stored with the outpatient records.

POLICY FOR RELEASE OF INFORMATION:

Patient level records are not public information, and may be shared only with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the Department of Health under section 192.067, RSMo. Policies and procedures for using patient level records and an application form can be found on pages 71 to 81.

Patient Abstracts (continued)

DATA ITEMS ON TAPE:

Data Items	Years Available
Hospital Identifier	1975–present
Unique Patient Identifier	1993–present
Inpatient or Outpatient Identifier	1993–present
Place of Service	1975-1982, 1983–present
Patient Name*	1992–present
Patient Social Security Number*	1992–present
Patient Birth Date	1975–present
Patient Age	1975–present
Patient Race/Ethnicity	1975–present
State of Residence	1975–present
ZIP Code	1975–present
Patient Census Tract (selected areas only)	1975–1978
County Code (Missouri residents)	1975–present
Admission Date	1975–present
Admission Hour (inpatients only)	1993–present
Source of Admission/Referral (inpatients only)	1975–present
Type of Admission (inpatients only)	1975–present
Discharge Date (inpatients only)	1975–present
Discharge Hour (inpatients only)	1993–present
Length of Stay	1975–present
Number of Observation Units	1993–present
Disposition of Patient (inpatients only)	1975–present
Medical Record Number	1993–present
Diagnosis Coding Method Used	1975–1987
Principal Diagnosis Code	1975–present
Other Diagnosis Codes	1975–present
DRG (diagnosis-related group)	1975–present
E-code (external cause of injury)	1993–present
Procedure Coding Method Used	1993–present
Principal Procedure Code and Date	1975–present
Other Procedure Codes and Dates	1975–present
Total Charges	1993–present
Primary Source of Payment	1975–present
Other Sources of Payment	1993–present
Attending Physician ID*	1975–present
Principal Procedure Physician ID*	1975–present

*These fields are stored separately from the rest of the record to insure confidentiality.

RELATED PUBLISHED ARTICLE:

Muelleman RL, Watson WA, Land GH, Davis JD, Hoskins BS. Missouri's emergency department e-code data reporting: A new level of data resource for injury prevention and control. J Public Health Manage Pract 1997;3(6):8–16.

This article describes the results of the first statewide external cause of injury (E-code) reporting system that includes emergency department (ED) visits. The results indicate that for every injury-related death, there are 20 hospitalizations and 174 ED visits. Although firearms and motor vehicle crashes were the leading causes of injury-related deaths, falls and motor vehicle crashes were the leading causes of ED visits. An analysis of injuries in one metropolitan statistical area in the state demonstrates similarities and differences from the statewide results. The statewide reporting of cause of injury information in ED visits provides valuable information for injury control efforts.

FEE FOR DATA:

The fee for inpatient data requiring computer programming will include a $85 file access charge, $30 per hour research analyst time and $2.50 postage and handling. The fee for outpatient data requiring computer programming will include a $170 file access charge, $30 per hour research analyst time and $2.50 postage and handling. State and local health departments, other Missouri state agencies and local government, media/media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

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POLICIES AND PROCEDURES FOR EPIDEMIOLOGICAL STUDIES WITH COINVESTIGATORS USING INDIVIDUAL RECORDS IN THE PATIENT ABSTRACT SYSTEM

The Patient Abstract System

The Missouri Department of Health (DOH), Center for Health Information Management and Epidemiology receives information abstracted from patient medical records of hospitalizations, emergency room visits, outpatient surgery, and selected other services and procedures (CAT scan, MRI, endoscopy, lithotripsy, etc.). Inpatient records of Missouri residents hospitalized in Iowa, Illinois and Kansas are also included. These data are reported to the department each calendar quarter by hospitals and ambulatory surgery centers. These patient records are held in a secure and confidential data file known as the Patient Abstract System (PAS)

DOH utilizes PAS information for epidemiologic studies within the Center for Health Information Management and Epidemiology. Other DOH divisions and "public health authorities" are authorized to use PAS records for epidemiological purposes.

Persons or organizations external to DOH and not public health authorities who are engaged in epidemiologic research studying the health status and health care needs of Missouri citizens sometimes request access to information held within PAS. These researchers must apply to DOH to become "coinvestigators" with the department. They must promise to respect the privacy of PAS records and must hold confidential the identity of patients, physicians and providers. Research proposals are reviewed by an independent Data Release Advisory Committee before DOH can provide PAS records to a coinvestigator.

Applicable State Law

Appendix A shows the Missouri state statute and **Appendix B** the Department of Health rule which govern the release of PAS information to coinvestigators.

Subsection 192.067.2., RSMo (1994) states: **"Medical information secured pursuant to the provisions of subsection 1 of this section may be released by the department only in statistical aggregate form that precludes and prevents the identification of patient, physician, or medical facility except that medical information may be shared with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the department of health. "Only** public health authorities and coinvestigators can receive record level data. PAS records cannot be released to anyone other than a public health authority, even when the patient, physician and provider identifiers have been removed, except after officially recognizing that person as a coinvestigator. One becomes a coinvestigator by applying to DOH and submitting a research protocol for review by the Data Release Advisory Committee.

Contact with a patient named in a PAS record is permitted by DOH rule 19 CSR 30-33.010, section (11), which authorizes release of PAS data to a public health authority. DOH can allow a public health authority to contact a patient named in a PAS record only if the physician and provider are informed in advance. If a public health authority locates patients on the basis of PAS information and contacts them face-to-face, then statements of informed consent, signed by the patient, should be required. Mailed questionnaires that adequately explain the research to the respondent are recognized as conforming to informed consent requirements, since the subject is at liberty to discard the questionnaire and thereby choose not to participate. Returning a completed questionnaire is equivalent to giving informed consent.

Coinvestigators cannot contact patients identified in PAS records provided to them for epidemiological purposes. Coinvestigators can only be authorized to conduct statistical analysis of existing data.

POLICIES AND PROCEDURES FOR EPIDEMIOLOGICAL STUDIES WITH COINVESTIGATORS USING INDIVIDUAL RECORDS IN THE PATIENT ABSTRACT SYSTEM (continued)

Data Release Advisory Committee

The Data Release Advisory Committee is comprised of six persons appointed by the director of DOH. Membership on the committee is for two-year terms.

Data Release Advisory Committee members serve as volunteers. There is no compensation. Incidental costs, such as copies, postage, telephone, etc. involved in the review process may be paid or reimbursed by DOH, subject to availability of funds.

Application and Approval Process

Persons or organizations desiring to become coinvestigators must complete the application form provided by DOH. Upon receipt of the completed application form, DOH will conduct an initial screening and review. **An application will be immediately rejected** when it is determined that (1) the proposed study is not an epidemiologic study, (2) the principal investigator does not have professional expertise to properly conduct the study, (3) monitoring and overseeing the study would burden DOH and require too many resources, or (4) there is credible reason to believe that a risk to confidentiality might exist if the requested data is released to the coinvestigator.

DOH staff will conduct the first review of the application and research protocol. DOH in-house review will follow the same review criteria expected of the Data Release Advisory Committee.

Copies of the application and research protocol will be mailed to each member of the Data Release Advisory Committee for review, comment and recommendation. Responses from committee members are expected within fifteen working days from the date of the mailout. Whenever a committee member has questions concerning the application or protocol, those questions should be directed to DOH. DOH will relay the questions on to the principal investigator. Responses received from the principal investigator will be shared with all committee members.

An application will be recommended for disapproval if four or more members of the Data Release Advisory Committee recommend disapproval.

If any reviewer expresses doubt and plausible reason for concern about the proposed study, especially with regard to confidentiality and data security, the principal investigator will have the burden of providing satisfactory assurances to both DOH and the committee that no unacceptable risk exists.

Providing Data to the Coinvestigator

Only those data elements that DOH deems necessary to the proper conduct of the approved research will be provided to the coinvestigator.

During the review period, the Bureau of Health Resources Statistics will examine the application and determine which PAS data elements are necessary for the analysis proposed in the research protocol. The principal investigator will be notified of any discrepancy between the list of data elements requested in the research proposal and those determined by DOH staff to be needed.

Some data processing, summations and/or statistical analysis may be done by DOH in cooperation with the coinvestigator.

Data are released to the coinvestigator for a single approved study. The coinvesitgator may not release data records to anyone not involved in the study. The coinvestigator must destroy all copies of the data after data analysis concludes.

POLICIES AND PROCEDURES FOR EPIDEMIOLOGICAL STUDIES WITH COINVESTIGATORS USING INDIVIDUAL RECORDS IN THE PATIENT ABSTRACT SYSTEM (continued)

Monitoring, Follow-up and Oversight

Progress reports will be requested from the principal investigator on a quarterly basis (or more frequently, if deemed necessary).

Requests for extension of time to complete the project must be submitted to DOH in writing. If review and oversight has not identified any matters of concern, the first request for time extension, if reasonable, will be approved. Subsequent requests for time extensions must be adequately justified.

All changes to the research protocol require approval by DOH in advance.

All changes in research staff must be immediately reported to DOH.

On-site inspections by DOH staff may occur at the discretion of DOH.

Reporting Results and Findings

All preliminary and final reports, publications and/or public presentations regarding the study and study results shall be prepared jointly with DOH or submitted to DOH for prior approval.

DOH may edit such reports, publications and presentations in language acceptable to both DOH and the coinvestigator.

DOH may submit to the coinvestigator written material to be included in any report, publication or presentation if DOH believes these changes or additions improve the accuracy, completeness or quality of the report, publication or presentation.

Cancelling the Project Before Completion

If DOH receives any credible report or evidence that unauthorized release of data or other breach of confidentiality may have occurred, DOH will immediately suspend the research project and investigate whether such unauthorized release or other breach has, in fact, happened.

If DOH determines that, by either willful intent or negligence,

- data have been released to unauthorized persons,
- the identity of a patient, physician or provider has been revealed to a person not listed as research staff on the approved research protocol, or
- data are being used in an unapproved manner,

DOH will withdraw as a coinvestigator in the study and order that all PAS data and other information provided by the DOH in possession of the principal investigator be destroyed.

POLICIES AND PROCEDURES FOR EPIDEMIOLOGICAL STUDIES WITH COINVESTIGATORS USING INDIVIDUAL RECORDS IN THE PATIENT ABSTRACT SYSTEM (continued)

APPENDIX A

Missouri Statute Authorizing and Restricting Epidemiological Studies Using Patient Abstract System Records

192.067. Patients' medical records, department may receive information from—purpose—confidentiality—immunity for persons releasing records, exception—penalty—costs, how paid.—1. The department of health, for purposes of conducting epidemiological studies to be used in promoting and safeguarding the health of the citizens of Missouri under the authority of this chapter is authorized to receive information from patient medical records.

2. The department shall maintain the confidentiality of all medical record information abstracted by or reported to the department. Medical information secured pursuant to the provisions of subsection 1 of this section may be released by the department only in a statistical aggregate form that precludes and prevents the identification of patient, physician, or medical facility except that medical information may be shared with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the department of health. The department of health, public health authorities and coinvestigators shall use the information collected only for the purposes provided for in this section.

3. No individual or organization providing information to the department in accordance with this section shall be deemed to be or be held liable, either civilly or criminally, for divulging confidential information unless such individual organization acted in bad faith or with malicious purpose.

4. The department of health is authorized to reimburse medical care facilities, within the limits of appropriations made for that purpose, for the costs associated with abstracting data for special studies.

5. Any department of health employee, public health authority or coinvestigator of a study who knowingly releases information which violates the provisions of this section shall be guilty of a class A misdemeanor and, upon conviction, shall be punished as provided by law.
(L. 1988 H.B. 1134 § 3)
Effective 5-4-88

POLICIES AND PROCEDURES FOR EPIDEMIOLOGICAL STUDIES WITH COINVESTIGATORS USING INDIVIDUAL RECORDS IN THE PATIENT ABSTRACT SYSTEM (continued)

APPENDIX B

Department of Health Rule Governing Release of Patient Abstract System Records to Coinvestigators for Epidemiological Studies

19 CSR 30-33.010 Reporting Patient Abstract Data by Hospitals and Ambulatory Surgical Centers

Sections (12) through (19) only

(12) Any person may apply to the department to be a coinvestigator of an epidemiological study using patient abstract data. A research protocol shall be submitted which includes all of the following:

(A) A description of the proposed study;

(B) The purpose of the study;

(C) A description of the data elements needed for the study;

(D) A description of a tape or a report if either is required;

(E) A statement indicating whether the study protocol has been reviewed and approved by an institutional review board;

(F) A description of data security procedures, including who shall have access to the data; and

(G) A description of the proposed use and release of the data.

(13) The director of the department shall appoint a data release advisory committee composed of three (3) persons representing the health care industry and three (3) persons representing researchers and consumers. The advisory committee shall review all research protocols of persons applying to be a coinvestigator of an epidemiological study using patient abstract data. The advisory committee shall make a recommendation to the director whether the coinvestigator protocol should be accepted, accepted with conditions, or rejected. The committee shall consider:

(A) The review made by the staff of the department;

(B) Whether the proposed study meets the definition of an epidemiological study;

(C) The potential for the coinvestigator or any other person to use the data for nonepidemiological purposes;

(D) The professional expertise of the applicant to conduct the study;

(E) The appropriateness of the proposed study design;

(F) The willingness and ability of the applicant to protect the identity of any patient, physician or provider; and;

(G) The data security measures and final disposition of the data proposed.

(14) The coinvestigator shall agree to the confidentiality, security and release of data requirements imposed by the department and shall agree to the review and oversight requirements imposed by the department.

(15) Data released to the coinvestigator shall not be rereleased in any form by the coinvestigator without the prior authorization of the department. Authorization for subsequent release of the data shall be considered only if the proposed release does not identify a patient, physician or provider.

(16) The following data elements permit identification of a patient, physician or provider, and are not to be released by a coinvestigator: patient name, patient Social Security number, any datum which applies to fewer than three (3) patients, physicians or providers; physician number; provider number; and a quantity figure if one (1) entity contributes more than sixty percent (60%) of the amount.

(17) The department shall release only those patient abstract data elements to the coinvestigator which the department determines are essential to the study. The Unique Physician Identification Number (UPIN) associated with any patient abstract data shall not be released to any coinvestigator. If the research being conducted by a coinvestigator requires a physician number, the department may create a unique number which is not the UPIN. The department shall not provide information which links the unique number to the name of the physician.

(18) No epidemiological study conducted with a coinvestigator shall be approved unless the department determines that—

(A) The epidemiological study has public benefit sufficient to warrant the department to expend resources necessary to oversee the project with the coinvestigator;

(B) The department has sufficient resources available to oversee the project with the coinvestigator; and

(C) The data release advisory committee reviewed the study and the director of the department authorized approval.

(19) Public health authorities and coinvestigators receiving data shall be informed by the department of the penalty for violating section 192.067, RSMo.

APPLICATION

To Become a Co-Investigator With
the **Missouri Department of Health**
In an Epidemiologic Study Using ***Patient Abstract System*** Data

PERSON OR ORGANIZATION APPLYING FOR CO-INVESTIGATOR STATUS: _____

Address: _____

_____

Telephone: ( ) _____ FAX: ( ) _____ E-mail: _____

TITLE OF THE STUDY: _____

_____

Desired Beginning Date: _____ Expected Ending Date: _____

NAME OF PRINCIPAL INVESTIGATOR RESPONSIBLE FOR STUDY _____

Address: _____

_____

Telephone: ( ) _____ FAX: ( ) _____ E-mail: _____

A CURRICULUM VITAE, RESUME OR OTHER APPROPRIATE STATEMENT OF THE QUALIFICATIONS AND CREDENTIALS OF THE PRINCIPAL INVESTIGATOR MUST BE SUBMITTED ALONG WITH THIS APPLICATION.

EXECUTIVE SUMMARY OF PROPOSED STUDY:

Patient Abstracts (continued)

List all persons who will work on this project and who will have access to data.

NAME	TITLE	ROLE

==========

Has this proposed study been reviewed by an **Institutional Review Board (IRB)**? Circle your response YES NO

If YES, give the name and location of the IRB:

_____

_____

Was the study approved by the IRB? Circle your response YES NO

If YES, please attach a copy of the letter of approval from the IRB, including any modifications, limitations or conditions required by the IRB.

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A RESEARCH PROTOCOL MUST BE ATTACHED TO THIS APPLICATION

The protocol must completely describe the study in nontechnical language and must provide sufficient detail to explain the study design and research methods proposed. The protocol should include, at a minimum but is not limited to, these elements:

The **NEED FOR THE STUDY**. How might this study be useful in understanding, promoting or safeguarding the health of the citizens of Missouri? What similar studies have been done before? How will this study contribute to knowledge?

The **PURPOSES OF THE STUDY**. What do you expect to accomplish? What is the end result you envision? What will be the subject of interim, preliminary and final research reports? To whom will the study results be presented?

The **RESEARCH QUESTION** this study is designed to answer.

The **RESEARCH METHODS** to be utilized in sampling, analyzing and interpreting the data, including statements of the reasons why these are the appropriate procedures and statistics.

The **DATA ELEMENTS** from the Patient Abstract System or other Department of Health data files needed to conduct this study. (***Requests for information which can identify an individudal patient, physician or provider must state the reasons why the study cannot be carried out without the identifying information***.)

The **CONFIDENTIALITY PROCEDURES AND PRECAUTIONS** you will implement to protect and assure that data which might identify a patient, physician or provider will be held as private information and not revealed, released or disclosed to any person other than those listed in the approved application and protocol. How and where will the data be securely stored? How and when will the data be finally destroyed?

CONFIDENTIALITY AGREEMENT

I, _____, Principal Investigator for the epidemiologic study entitled _____

_____

understand and agree that all data or other information provided to me by the Missouri Department of Health which could identify a patient, physician or health care provider shall be regarded as private and confidential.

I understand and agree that data or other information provided to me by the Missouri Department of Health shall not be used for any purpose other than as stated in the approved protocol for the above-named epidemiologic study. **I understand that use of this data and information for any of the following is expressly forbidden:**

- **any partisan political purpose,**
- **marketing research,**
- **data analysis focusing on a single health care provider or provider organization in particular,**
- **administrative, legal, or other non-statistical purposes.**

I understand and agree that any publication, public presentation or other release of data and results of this study must be approved in advance by the Missouri Department of Health. No information or data analysis may be published, presented, divulged, disclosed or released in any manner or form which might identify a patient, physician or health care provider. I agree not to release any report or other information which reveals any

- patient name,
- patient social security number,
- provider identification number,
- datum which applies to fewer than three patients, physicians or providers, or
- quantity figure if one (1) entity contributes more than sixty percent (60%) of the amount.

I will implement precautions designed to assure that no person other than those listed in the approved protocol and proposal for this study will have access to any data or other information provided by the Missouri Department of Health which could identify a patient, physician or health care provider. I will not use any patient record or information provided by the Missouri Department of Health for purposes of contacting any patient, physician or provider, in person, by telephone, mail, or other means.

I understand that if the Department of Health determines that, by either willful intent or negligence,

- data have been released to unauthorized persons,
- the identity of a patient, physician, or provider has been revealed to any unauthorized person, or
- data are being used in an unapproved manner

the department will withdraw as a coinvestigator in the study and order that all Patient Abstract System data and other information provided by the Department of Health in possession of the principal investigator be destroyed.

I understand that my use of patient records and private information provided by the Missouri Department of Health is governed by Missouri state statute (197.067, RSMo) and by Missouri state regulation (19 CSR 30-33.010), as well as other applicable state and federal law (e.g., 45 CFR 46). **Willful violation of the provisions and requirements of 192.067, RSMo is criminal activity, subject to prosecution, with penalties including fines, mandatory public service, and up to one year in jail.**

Signed: _____ Date: _____

Principal Investigator

AGREEMENT FOR OVERSIGHT
BY THE MISSOURI DEPARTMENT OF HEALTH

I, _____, **Principal Investigator**,

and I, _____, **Administrator or Chief Executive Officer**, do hereby agree to cooperate with the Missouri Department of Health in the conduct of the epidemiologic study entitled _____

_____.

Progress reports and preliminary findings will be submitted to the Missouri Department of Health as stipulated in the research protocol or as requested by the Missouri Department of Health.

Missouri Department of Health personnel will be allowed access to all data files and other information utilized in the course of this study.

Missouri Department of Health personnel may conduct site visits and inspections on the premises where data are stored or analysis is performed. Such site inspections shall be at the option of the Department of Health. On-site inspections may occur during the course of the study or after the date of deadline for final destruction of data.

Signed:

_____ _____

Principal Investigator CEO / Administrator

_____ _____

Date Date

Sexually Transmitted Diseases

In 1995, the Bureau of STD/HIV Prevention prioritized four sexually transmitted diseases (STD) for surveillance and field investigation: syphilis, gonorrhea, chlamydia and human immunodeficiency virus (HIV). Department of Health (DOH) rule 19 CSR 20-20.020 requires reporting of these conditions. HIV patient data are stored in the HIV/AIDS Reporting System (HARS) and are described in the surveillance system description on pages 63–66. Other STD patients are tracked in STD*MIS, standard software provided by the Centers for Disease Control and Prevention (CDC) for nationwide collection and reporting of data. STD disease data are compiled and transmitted weekly to CDC via the National Electronic Telecommunications System for Surveillance (NETSS).

Reports are usually received on the Disease Case Report (CD-1) form found on pages A-9 to A-10 of the Appendix.

POLICY FOR RELEASE OF INFORMATION:

Patient level records are not public information, and may be shared only with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the Department of Health under section 192.067, RSMo.

Only staff directly involved in STD surveillance activities have access to complete patient registries.

Statistical data can be released to such entities as local health agencies, community planning partners, health care providers and the general public in aggregate format. Usually, cases of STDs can be released by exact number; however, there could theoretically be instances when the release of small numbers (termed small cell data) could lead to direct identification of a patient (e.g., one case of syphilis in a small rural county). Release of small numbers in these instances is at the discretion of Kurt Kleier, Program Manager, Epidemiology Services.

Aggregate STD data are used for:

- Health education
- Media dissemination
- Preparing grant applications
- Providing general information

ITEMS IN DATABASE:

(STD*MIS provides STD (gonorrhea, syphilis and chlamydia) data from 1992 to the present.)

Data Items

Name
Disease
Demographic Information (i.e., age, race, sex, ethnicity)
Location of Diagnosis (i.e., zip code)
Date of Diagnosis (i.e., month and year)
Type of Facility of Diagnosis (i.e., private physician, hospital inpatient, hospital outpatient, STD clinic)
Specific Clinical Information/Laboratory Data (i.e., diagnostic testing history)

AVAILABLE PUBLICATIONS:

Publication Number	Report Title and Summary	Date	Publication Cost
	HIV/STD KWIK Facts Yearly epidemiologic profile of STD and HIV disease in Missouri—available in April of each year	1996 to present	No Charge
	HIV/STD Statistics Quarterly publication available in March, June, September and December of each year	1994 to present	No Charge

Sexually Transmitted Diseases (continued)

RELATED PUBLISHED ARTICLES:

Meyerson B, Kleier KM, Hamm RH. Sexually transmitted diseases and HIV - 1996. Missouri Epidemiologist 1997;19(3)22–29.

Missouri Department of Health, Division of Environmental Health and Communicable Disease Prevention. Sexually transmitted diseases. Reportable Diseases and Conditions in Missouri Biennial Report 1994–95:39–49.

Meyerson B, Elliott J, Hamm R. Sexually transmitted diseases and HIV - 1995. Missouri Epidemiologist 1996;18(3): 24–27.

Meyerson B, Hamm RH. Sexually transmitted diseases and HIV - 1994. Missouri Epidemiologist 1995;17(3):22–26.

Missouri Department of Health, Division of Environmental Health and Epidemiology. Sexually transmitted diseases. Reportable Diseases and Conditions in Missouri Biennial Report 1992–93:31–40.

Huber B, Hamm RH. Early syphilis in the Bootheel region of southeast Missouri. Missouri Epidemiologist 1994;16(5): 1–2, 13.

Huber B. Sexually transmitted diseases - 1993. Missouri Epidemiologist 1994;16(3):10–11.

Hamm RH, Donnell HD. Syphilis in Missouri: A continuing problem. Mo Med 1994;91(5):224–29.

Syphilis has re-emerged as a significant public health problem in the United States and in Missouri. Reported cases of primary and secondary (P&S) syphilis and congenital syphilis in Missouri have been increasing since the late 1980s, and a major outbreak of these diseases continues in the St. Louis area. The nature of syphilis combined with certain characteristics of those populations at highest risk of infection can make prevention and control difficult. Achieving success requires the cooperative efforts of practicing physicians and public health professionals.

Hamm R. Congenital syphilis in Missouri. Missouri Epidemiologist 1994;16(2):14–18.

Huber B. Sexually transmitted diseases - 1992. Missouri Epidemiologist 1993;15(4):26–27.

Friedman C. Syphilis epidemic sweeps St. Louis metropolitan area. Missouri Epidemiologist 1993;15(4):24–25.

Donnell HD. Syphilis outbreak leads to emergency declaration. Missouri Epidemiologist 1992;14(5):20–21.

Huber B. Sexually transmitted diseases - 1991. Missouri Epidemiologist 1992;14(4):16–17.

Lemmon K, Compton L, Sharma D. Syphilis in St. Louis City. Missouri Epidemiologist 1992;14(2):14–15.

Missouri Department of Health, Division of Environmental Health and Epidemiology. Sexually transmitted diseases. Reportable Diseases and Conditions in Missouri Biennial Report 1990–91:27–36.

Bly RL. Sexually transmitted diseases - 1990. Missouri Epidemiologist 1991;13(5):2–3.

Bly R. 1989 sexually transmitted diseases. Missouri Epidemiologist 1990;Special Annual Report - 1989:4.

Davis EH, Bly RL, Donnell HD. Chlamydia trachomatis: Missouri study. Missouri Epidemiologist 1989;11(2):4–5.

Bly R. 1988 sexually transmitted diseases: Syphilis & gonorrhea increasing. Missouri Epidemiologist 1989;Special 1988 Annual Summary:6.

Bly R. Penicillinase-producing Neisseria gonorrhoeae (PPNG) update. Missouri Epidemiologist 1988;10(4):2–3.

Bly R. Sexually transmitted disease trends. Missouri Epidemiologist 1988;10(2):3–4.

Huber B. Penicillinase producing Neisseria gonorrhoeae (PPNG). Missouri Epidemiologist 1987;9(2):1–2.

Sexually Transmitted Diseases (continued)

FEE FOR DATA:

Data are provided free of charge.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

Joann Feltrop
Office of Surveillance
Division of Environmental Health and
Communicable Disease Prevention
Missouri Department of Health
PO Box 570
Jefferson City, MO 65102-0570

Ph: (573) 751-6463
FAX: (573) 751-6417
E-mail: feltrj@mail.health.state.mo.us

For special data requests:

Joe Betros
Office of Surveillance
Division of Environmental Health and
Communicable Disease Prevention
Missouri Department of Health
PO Box 570
Jefferson City, MO 65102-0570

Ph: (573) 751-6146
FAX: (573) 751-6417
E-mail: betroj@mail.health.state.mo.us

Tuberculosis Disease

Missouri Department of Health rule 19 CSR 20-20.020 requires tuberculosis disease to be reported to the Department of Health. The tuberculosis disease surveillance system maintained by the Bureau of Tuberculosis Control was provided by the Centers for Disease Control and Prevention, and is similar to those used by other states. This surveillance system was established January 1, 1993. The Bureau of Tuberculosis Control receives 200–250 reports of tuberculosis disease per year. Reports are received on the Report of Verified Case of Tuberculosis (CDC 72.9A) form found on pages A-21 to A-24 of the Appendix.

POLICY FOR RELEASE OF INFORMATION:

Patient level records are not public information, and may be shared only with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the Department of Health under section 192.067, RSMo.

Aggregate data on the number of tuberculosis disease cases reported and case rates statewide and per county are compiled by the Bureau of Tuberculosis Control on a yearly basis. Other aggregate data on tuberculosis disease for 1993 to present are available upon request. Data prior to 1993 are also available, and historical records are archived.

ITEMS IN DATABASE:

(Items in database for 1993 to the present)

Data Items

Date Submitted
Name of Submitter
Address for Case Counting (city, county, zip code)
Date of Birth
Month-Year Reported
Month-Year Counted
Sex
Race
Ethnic Origin
Country of Origin
Month-Year Arrived in United States
Status at Diagnosis (alive/dead)
Previous Diagnosis of Tuberculosis
Major Site of Disease
Additional Site of Disease
Sputum Smear
Sputum Culture
Microscopic Exam of Tissue and Other Body Fluids
Culture of Tissue and Other Body Fluids
Chest X-ray Results
Tuberculin (Mantoux) Skin Test at Diagnosis
HIV Status

Data Items

Homeless Within the Past Year
Resident of Correctional Facility at Time of Diagnosis
Resident of Long-Term Care Facility at Time of Diagnosis
Initial Drug Regimen
Date Therapy Started
Injecting Drug Use Within Past Year
Non-Injecting Drug Use Within Past Year
Excess Alcohol Use Within Past Year
Occupation
Initial Drug Susceptibility Results
Documentation of Sputum Culture Conversion
Date Therapy Stopped
Reason Therapy Stopped
Type of Health Care Provider
Directly Observed Therapy
Final Drug Susceptibility Results
General Demographic Information
Diagnostic Information Related to Tuberculosis
Risk Factors for Disease
Drug Regimen
Lab Results (including drug resistance)
Patient Completion of Therapy Information

RELATED PUBLISHED ARTICLES:

Tomlinson V. Tuberculosis annual report for 1996. Missouri Epidemiologist 1997;19(3):19–21.

Phillips L, Tomlinson V, Pierce S, Weinbaum C, Donnell HD. Tuberculosis hospital discharge study. Missouri Epidemiologist 1997;19(1):1–2.

RELATED PUBLISHED ARTICLES (continued):

Missouri Department of Health, Division of Environmental Health and Communicable Disease Prevention. Tuberculosis. Reportable Diseases and Conditions in Missouri Biennial Report 1994–95:51–54.

Ruggiero D. Tuberculosis 1995 annual report. Missouri Epidemiologist 1996;18(3):10–12,35.

Ruggiero D. Missouri establishes directly observed therapy (DOT) for tuberculosis as the standard of care. Missouri Epidemiologist 1996;18(2):18–19,21.

Ruggiero D. Tuberculosis 1994 annual report. Missouri Epidemiologist 1995;17(3):28–31.

Huber M. Tuberculosis in Pacific Island college students in Missouri, 1994–95. Missouri Epidemiologist 1995;17(4):13–15,17.

Missouri Department of Health, Division of Environmental Health and Epidemiology. Tuberculosis. Reportable Diseases and Conditions in Missouri Biennial Report 1992–93:41–43.

Hoge CW, Fisher L, Donnell HD, Dodson DR, Tomlinson GV, Breiman RF, Bloch AB, Good RC. Risk factors for transmission of Mycobacterium tuberculosis in a primary school outbreak: Lack of racial difference in susceptibility to infection. Am J Epidemiol 1994;139(5):520–30.

Recent data have suggested that there are racial differences in the susceptibility to infection by *Mycobacterium tuberculosis*. An opportunity to test this suggestion was afforded by an outbreak of tuberculosis in a racially mixed elementary school in St. Louis County, Missouri. A physical education teacher was discovered to have cavitary pulmonary tuberculosis. Of 343 students in the school, 176 (51%) were found to be tuberculin skin test positive (≥5 mm induration by Mantoux method); 32 children had abnormal chest radiographs. More frequent contact with the physical education teacher was associated with infection ($p < 0.001$). Black children were no more likely to be infected than were white children (relative risk (RR) = 0.98, 95% confidence interval (CI) 0.78–1.22). However, black children who were tuberculin positive had larger skin reactions than did white children (mean, 18.9 vs 16.6 mm, $p < 0.001$) and were more likely to have abnormal chest radiographs (RR = 2.76, 95% CI 1.44–5.27). Among tuberculin-positive children, low body mass index (less than 10th percentile) was associated with active disease (RR = 2.90, 95% CI 1.45–5.80). The analysis of race was unchanged after controlling for sex, body build, and level of contact with the physical education teacher. Widespread tuberculous infection resulted from contact with a highly infectious staff person. Thin body build was a risk factor for active disease. Black children were no more susceptible to infection than were white children, although they more commonly developed radiographic evidence of active disease.

Ruggiero D. Tuberculosis Summary - 1993. Missouri Epidemiologist 1994;16(3):24–26.

Meyer A. Tuberculosis in 1992: Continuing concern for the very young, elderly, minorities and the foreign-born. Missouri Epidemiologist 1993;15(4):18–19.

Meyer A. Multidrug-resistant tuberculosis: Cause for recommendation of four-drug treatment. Missouri Epidemiologist 1993;15(2):20-21.

Missouri Department of Health, Division of Environmental Health and Epidemiology. Tuberculosis. Reportable Diseases and Conditions in Missouri Biennial Report 1990–91:35–36.

Tomlinson V. Tuberculosis in 1991: Concern for high-risk groups as well as general public. Missouri Epidemiologist 1992;14(4):1–2.

Tomlinson V. Low incidence of drug resistant mycobacterium tuberculosis in Missouri. Missouri Epidemiologist 1992;14(3):15.

Tomlinson V. Tuberculosis in Missouri schools. Missouri Epidemiologist 1992;14(2):1–2.

Tomlinson V. Tuberculosis in 1990: Increasing concern for minorities, elderly and younger Missourians. Missouri Epidemiologist 1991;13(5):12.

Donnell HD, Tomlinson V, Fisher LA, Dodson DR. Tuberculosis in an elementary school. Missouri Epidemiologist 1991;13(4):5–6.

Tuberculosis Disease (continued)

RELATED PUBLISHED ARTICLES (continued):

Donnell HD, Tomlinson V, Ives J. Tuberculosis screening in a Missouri state correctional facility. Missouri Epidemiologist 1990;12(6):1,4.

Tomlinson V. Tuberculosis in 1989: Concern increases for 25–44 age group, AIDS patients and inmates. Missouri Epidemiologist 1990;Special Annual Report:8.

Malone B. Tuberculosis in Missouri correctional centers. Missouri Epidemiologist 1989;11(5):3–4.

Malone B. Tuberculosis 1988: Concern rises for inmate populations and AIDS cases. Missouri Epidemiologist 1989;Special 1988 Annual Summary:7.

Malone B. Tuberculosis and the acquired immunodeficiency syndrome. Missouri Epidemiologist 1989;10(2):1–2.

FEE FOR DATA:

At the present time, there is no charge for this data.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

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Bureau of Tuberculosis Control
Division of Environmental Health and
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Missouri Department of Health
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Tuberculosis Infection

Missouri is one of five states in the nation that requires reporting of tuberculosis infection. Tuberculosis infection became reportable in Missouri March 14, 1991. Tuberculosis infection is diagnosed by a positive Mantoux skin test. The Bureau of Tuberculosis Control maintains a registry of tuberculosis infection, and receives about 4,000 case reports each year. Reports are received on the Tuberculin Testing Record (MO 580-1589) form found on pages A-25 to A-26 of the Appendix.

POLICY FOR RELEASE OF INFORMATION:

Patient level records are not public information, and may be shared only with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the Department of Health under section 192.067, RSMo.

Aggregate data on the number of tuberculosis infections reported and completion of preventive therapy rates statewide and per county are compiled by the Bureau of Tuberculosis Control on a yearly basis. Other aggregate data on tuberculosis infection for 1991 to present are available upon request.

ITEMS IN DATABASE:

(Items in database for 1991 to the present)

Data Items

Name
Home Telephone Number
Work Telephone Number
Social Security Number
Address
County
Date of Birth
Sex
Race
Ethnic Origin
Occupation
Place of Employment
History of BCG Vaccination
History of Previous Skin Tests
Current Skin Test Information
Name and Phone Number—Attending Health Care Provider
Name, Address, Phone Number of Reporter
Date of Report
Reason for Testing
Chest X-ray Date and Results
Treatment Recommendations
Preventive Therapy Dosage and Start Date
Risk Factors for Active Tuberculosis Disease
Completion of Treatment Information
(Date Treatment Completed or Stopped, the Reason Treatment Stopped)

RELATED PUBLISHED ARTICLES:

Phillips L. Tuberculosis infection in Missouri. Missouri Epidemiologist 1997;19(4):16–17.

Tuberculosis Infection (continued)

FEE FOR DATA:

At the present time, there is no charge for this data.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

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Vaccine-Preventable Diseases

Missouri Department of Health rule 19 CSR 20-20.020 requires the following vaccine-preventable diseases to be reported to the Department of Health: diphtheria, measles, mumps, pertussis, poliomyelitis, rubella, and tetanus. Reports are usually received on the Disease Case Report (MO 580-0779) form found on pages A-9 to A-10 of the Appendix. The Bureau of Immunization gathers data on these diseases in addition to *Haemophilus influenzae* type b and varicella.

Since 1996, the disease data have been compiled and entered weekly into the Centers for Disease Control and Prevention's (CDC) National Electronic Telecommunications System for Surveillance (NETSS).

POLICY FOR RELEASE OF INFORMATION:

Patient level records are not public information, and may be shared only with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the Department of Health under section 192.067, RSMo.

The aggregate statewide data on the number of cases reported and their race, sex and age are compiled quarterly. The Bureau of Immunization uses this information to track the incidence of vaccine-preventable diseases within the state.

ITEMS IN DATABASE:

(Items in database for 1996 to the present.)

Data Items

Record Type
Case ID Number
Name
Address
Telephone Number
Person Referring (physician, local public health agency, hospital, lab)
Demographics:
- Sex
- Ethnicity
- Race
- Date of Birth

Clinical Data:
- Onset Date
- Outbreak Associated
- Symptoms

Treatment or Immunization (if indicated) **:**
- Treatment or Immunization Given
- Date Treatment Began or Date of Immunization

Laboratory Results:
- Disease Specific Test
- Date of Test
- Result of Test

Vaccine History:
- Vaccinated against Specific Disease
- Date of Last Immunization
- Vaccine Type
- Vaccine Manufacturer
- Reason for Not Being Immunized

Data Items

Epidemiological Information:
- Date First Reported to Health Department
- Date Investigation Began
- Epidemiologically Linked
- Outbreak Related
- Transmission Setting

Contacts:
- Name
- Address
- Telephone Number
- Age
- Sex
- Relation to Patient
- Similar Illness? Onset Date
- Date Medication Given
- Type of Medication
- Date of Laboratory Specimen
- Laboratory Results

Comments

Vaccine-Preventable Diseases (continued)

RELATED PUBLISHED ARTICLES:

Storm G. Vaccine-preventable diseases—January–June 1997. Missouri Epidemiologist 1997;19(4):2.

Denny S. Vaccine-preventable disease 1996 annual report. Missouri Epidemiologist 1997;19(3):1–2.

Missouri Department of Health, Division of Environmental Health and Communicable Disease Prevention. Vaccine-preventable diseases. Reportable Diseases and Conditions in Missouri Biennial Report 1994–95:29–37.

Harder MA. Vaccine-preventable disease 1995 annual report. Missouri Epidemiologist 1996;18(3):5.

Centers for Disease Control and Prevention. Outbreak of measles among Christian Science students—Missouri and Illinois, 1994. Missouri Epidemiologist 1995;17(5):6–7.

Harder MA. Vaccine-preventable disease 1994 annual report. Missouri Epidemiologist 1995;17(3):21,27.

Missouri Department of Health, Division of Environmental Health and Epidemiology. Immunizable diseases. Reportable Diseases and Conditions in Missouri Biennial Report 1992–93:21–30.

Harder MA. Vaccine-preventable diseases—1993. Missouri Epidemiologist 1994;16(3):23,27.

Kemna M. Vaccine-preventable diseases—1992. Missouri Epidemiologist 1993;15(4):17.

Missouri Department of Health, Division of Environmental Health and Epidemiology. Immunizable diseases. Reportable Diseases and Conditions in Missouri Biennial Report 1990–91:19–26.

Kemna M. Vaccine-preventable diseases—1991. Missouri Epidemiologist 1992;14(4):20.

Kemna M. Vaccine-preventable disease among the preschool age population. Missouri Epidemiologist 1992; 14(1):2–3.

Speissegger L, Kemna M. Vaccine-preventable diseases—1990. Missouri Epidemiologist 1991;13(5):11.

Speissegger L, Kemna M. Vaccine-preventable diseases—1989. Missouri Epidemiologist 1990;Special Annual Report:3.

Payne B, Malone B. Pertussis in Missouri. Missouri Epidemiologist 1990;12(2):1–3.

Laliberte K. Vaccine preventable diseases. Missouri Epidemiologist 1989;Special 1988 Annual Summary:7.

FEE FOR DATA:

At the present time, there is no charge for this data.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

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Bureau of Immunization
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Environmental and Occupational Diseases and Conditions

The Bureau of Environmental Epidemiology receives reports of environmentally or occupationally-induced illnesses required to be reported by Department of Health rules 19 CSR 20-20.020 and 19 CSR 20-20.080. Reports are usually received on the Disease Case Report (MO 580-0779) form found on pages A-9 to A-10 of the Appendix. These reports include Missouri cases of the following:

Acute chemical poisoning as defined in 56 FR 52166-52175,
Methemoglobinemia
Pesticide poisoning
Arsenic poisoning
Cadmium poisoning
Carbon monoxide poisoning
Lead exposure greater than or equal to ten micrograms per deciliter (≥10µg/dl) in persons under age eighteen (<18) or greater than or equal to twenty-five micrograms per deciliter (≥25 µg/dl) in persons age eighteen or greater (≥18),
Mercury poisoning
Occupational lung diseases including silicosis, asbestosis, byssinosis, farmer's lung, and toxic organic dust syndrome,
Respiratory diseases triggered by environmental factors including environmentally or occupationally induced asthma and bronchitis.

This surveillance system began receiving case reports in January 1994; therefore, aggregate data are available upon request beginning with that year.

POLICY FOR RELEASE OF INFORMATION:

Patient level records are not public information, and may be shared only with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the Department of Health under section 192.067, RSMo.

ITEMS IN DATABASE:

(Items in database for 1994 to present.)

Data Items

Name
Address
Person Reporting (physician, local public health agency, hospital, lab)
Demographics:
- Sex
- Ethnicity
- Race
- Date of Birth

Data Items

Onset Date
Source of Exposure (if known)
Laboratory Results:
- Disease Specific Test
- Date of Results
- Result of Test

Comments

RELATED PUBLISHED ARTICLES:

Quinn BM. Bureau of environmental epidemiology 1996 annual report. Missouri Epidemiologist 1997;19(3):15–16.

Quinn BM. Bureau of environmental epidemiology FY 1995 report. Missouri Epidemiologist 1996,18(3):34.

Missouri Department of Health, Division of Environmental Health and Communicable Disease Prevention. Environmental and occupational diseases and conditions. Reportable Diseases and Conditions in Missouri Biennial Report, 1994–1995:73–81.

Environmental and Occupational Diseases and Conditions (continued)

FEE FOR DATA:

At the present time, there is no charge for this data.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

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Environmental Health

In June 1983, the Missouri General Assembly enacted House Bill 528, known as Missouri's "Superfund" law, which amended the 1977 Hazardous Waste Management sections (260.350–434, RSMo) and added additional sections entitled Abandoned or Uncontrolled Sites (260.435–550, RSMo). Section 260.440, RSMo directs the Missouri Department of Natural Resources to maintain and make available for public inspection a registry of confirmed abandoned or uncontrolled hazardous waste disposal sites in Missouri and to publish a report each January evaluating sites on the registry.

There are currently 54 sites in this registry. The Department of Natural Resources has established a site assessment committee of five members, including a representative from the Department of Health. An employee in the Division of Environmental Health and Communicable Disease Prevention serves as this representative, and is responsible for identifying possible adverse human health effects of a site. Site visits are made, environmental samples are collected, and general exposure questionnaires are administered by environmental specialists to persons living or working in the area surrounding the site.

Cancer mortality rates by age are routinely calculated by Missouri Center for Health Statistics staff for site populations (usually zip code areas).

Reproductive health indicators such as rates of fetal death, low birth weight and congenital anomalies are also developed. Birth and death files, as well as data obtained from the Multi-Source Birth Defect Registry are used when calculating these rates.

If a site area has a particularly high rate of health problems compared with the state and potential adverse health effects are possible according to environmental data, a more detailed analysis of the vital statistics data will be conducted. This may involve narrowing the population at risk to a few streets and/or blocks or breaking the data out by some additional variable(s).

Since 1981, Missouri Center for Health Statistics staff has also been involved in providing data for and reviewing health profiles of areas surrounding Resource Conservation and Recovery Act sites. The health profiles are required from all companies applying for a hazardous waste disposal permit under subsection 260.395.7, RSMo. Missouri Center for Health Statistics staff provide vital statistics and hospital discharge data to these companies to assist in producing health profiles. Consultative services regarding small area data analysis are also provided. Health profiles require more extensive analyses than those done for the Department of Natural Resources registry.

FEE FOR DATA:

Because of the extensive computer and research analyst time involved in providing data to those seeking to produce a health profile, the charges for file access (includes data from four different data sets), research analyst time and handling usually total $1,500–$3,000.

CONTACT FOR DATA OR ADDITIONAL INFORMATION:

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Environmental Health (continued)

CONTACT FOR INFORMATION ABOUT ENVIRONMENTAL HEALTH ISSUES:

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Lead Registry

The Missouri Department of Health amended 19 CSR 20-20.020 designating lead poisoning as a reportable condition in Missouri effective April 1993. Subsequently, sections 701.300–338, RSMo addressing lead abatement and prevention of lead poisoning became effective in August 1993. Because of these laws, and with the receipt of a Centers for Disease Control and Prevention grant, the Department of Health established the Childhood Lead Poisoning Prevention Program (CLPPP). The program is currently located in the Bureau of Environmental Epidemiology, Division of Environmental Health and Communicable Disease Prevention.

The Missouri Childhood Lead Poisoning Prevention Program uses the Centers for Disease Control and Prevention Systematic Tracking of Elevated Lead Levels and Remediation (STELLAR) software to monitor clients who have been tested for lead poisoning. STELLAR is used to track:

Lead testing results;
Medical management of cases; and
Investigation and abatement of lead hazards.

In addition to the above functions, the Lead Poisoning Prevention Program uses STELLAR to collect and analyze statewide lead data and submit aggregate information to the Centers for Disease Control and Prevention. Most information is reported using the Disease Case Report (MO 580-0779) form found on pages A-9 to A-10 of the Appendix.

Primarily, blood lead test data are available in the aggregate by geographic distribution on Missourians age less than 6 years of age. The program plans to begin collecting and analyzing data on clients of all ages in the future.

POLICY FOR RELEASE OF INFORMATION:

Patient level records are not public information, and may be shared only with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the Department of Health under sections 192.067 and 701.328, RSMo.

Aggregate blood lead testing datasheets by Missouri county are produced periodically and are available free of charge.

DATA ITEMS AVAILABLE:

(Data items available for 1993 to present.)

Data Items

Unique Client Identifying Number
Name
Birth Date
Sex
Race
Ethnicity
Guardian
Guardian Phone Number
Address
Lead Exposure Medical History and Interventions
Health Care Provider Information
Lead Hazard Environmental History and Interventions
Financial Information

Lead Registry (continued)

RELATED PUBLISHED ARTICLES:

Murgueytio A, Evans R, Sterling D, Serrano F, Roberts D. Behaviors and blood lead levels of children in a lead-mining area and a comparison community. Environ Health 1998;Jan/Feb:14–20,27.

Quinn BM. Bureau of environmental epidemiology 1996 annual report. Missouri Epidemiologist 1997;19(3):14–15.

Murgueytio A, Evans R, Roberts D, Moehr T. Prevalence of childhood lead poisoning in a lead-mining area. J Environ Health 1996;58(10):12–17.

Quinn BM. Bureau of environmental epidemiology FY 1995 report. Missouri Epidemiologist 1996,18(3):33–34.

Missouri Department of Health, Division of Environmental Health and Communicable Disease Prevention. Lead Poisoning. Reportable Diseases and Conditions in Missouri Biennial Report, 1994–1995:77–78.

Carlson GM. Bureau of environmental epidemiology FY 1994 report. Missouri Epidemiologist 1995;17(3):12–13.

Missouri Department of Health, Division of Environmental Health and Epidemiology. Childhood Lead Poisoning. Reportable Diseases and Conditions in Missouri Biennial Report 1992–93:63–64.

Carlson GM. Bureau of environmental epidemiology FY 1993 report. Missouri Epidemiologist 1994;16(3):6–7.

Carter M. Childhood lead poisoning. Missouri Epidemiologist 1993;15(2):6,21.

FEE FOR DATA:

At the present time, there is no charge for this data.

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

STELLAR Coordinator
Childhood Lead Poisoning Prevention Program
Office of Surveillance
Division of Environmental Health and
Communicable Disease Prevention
Missouri Department of Health
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Jefferson City, MO 65102-0570

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Radon

The Radon Program is located within the Bureau of Environmental Epidemiology. A Radiological Health Analyst III and a Clerk-Stenographer III are funded through a State Indoor Radon Grant, to work 50% of their time on the program.

Radon is a colorless, odorless and tasteless gas that comes from the natural decay or breakdown of uranium that is found in nearly all soils. Radon typically moves through the ground to the air above and into homes and other buildings through cracks and openings in the foundations. Any home, school or workplace may have a radon problem, regardless of whether it is new or old, well-sealed or drafty, or with or without a basement. It can be found in high concentrations in soil and rock containing uranium, granite, shale, phosphate and pitchblende. It may also be found in soils contaminated with certain types of industrial wastes, such as by-products from uranium or phosphate mining.

In outdoor air, radon is diluted to such low concentrations that it is usually harmless. However, once inside an enclosed space, such as a home, it can accumulate. Indoor levels depend both on the concentration of radon in the underlying soil and the building's construction. The only known health effect associated with exposure to elevated levels of radon is an increased risk of developing lung cancer.

The program is designed to determine the distribution of radon in Missouri and to identify areas in the state that might have the potential for significantly elevated concentrations of indoor radon. The radon study conducted in 1987–88 showed that about 18% of homes tested, or nearly one in five, had concentrations greater than the 'action level' of four picocuries per liter. The department recommends additional testing in homes where radon levels exceed the action level, and risk reduction measures when levels are consistently over this mark. Results of the survey conducted in 1987–88 has been incorporated into EPA document 402-R-93-045 "EPA's Map of Radon Zones" MISSOURI.

The Missouri Department of Health, in cooperation with the U.S. Environmental Protection Agency (EPA), has conducted several surveys since 1987 to measure concentrations of radon in selected homes, schools and day care centers. The data from those surveys are being analyzed and will be made available in the near future.

POLICY FOR RELEASE OF INFORMATION:

Specific identifying information collected during radon surveys is not public information, and may be shared only with other public health authorities and coinvestigators of a health study if they abide by the same confidentiality restrictions required of the Department of Health under section 192.067, RSMo.

PUBLICATIONS AVAILABLE:

Publication Number	Report Title	Date	Publication Cost
402-R-93-045	**EPA's Map of Radon Zones, Missouri**	September 1993	No Charge

RELATED PUBLISHED ARTICLES:

Miller K. Radon in schools. Missouri Epidemiologist 1992;14(1):16.

FEE FOR DATA:

At the present time, there is no charge for this data.

Radon (continued)

CONTACT FOR DATA REQUESTS OR ADDITIONAL INFORMATION:

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Consumer Guides to Health Care

Sections 192.665–667, RSMo created a health care reporting system within the Department of Health. Hospitals and ambulatory surgical centers are required to report charge data and patient abstract data. Hospitals are also required to provide financial data.

The Missouri Center for Health Statistics collects and analyzes this and other information that is available and issues health-related consumer guides at least annually. These guides contain comparative facility-specific information on a wide range of indicators. All of the booklets are widely distributed to help consumers in Missouri make knowledgeable health care decisions.

The first set of guides, *Buyer's Guide: Outpatient Procedures ('92-93)*, was released in December 1993. Data included are facility charges for various outpatient procedures and an indicator showing those facilities that had very high or very low volumes of certain types of cases per year. The range of charge data values within the five regional booklets is listed, as is the average statewide charge for each procedure. Facilities that had consistently high or low charges for groups of procedures are also noted. Updated guides were released for 1994, 1995 and 1996.

The second set of guides, *Buyer's Guide: Obstetrical Services*, provides information on facility charges, programs and services available to mothers and infants, patient outcomes, patient satisfaction, staffing and other characteristics of the delivery system at each obstetrical facility in the state.

The sixth set of guides, *Buyer's Guide: Hospital Emergency Services*, provides information on emergency department characteristics, staffing, support services, waiting times, patient satisfaction and other characteristics of the emergency services department at each hospital offering such services.

One topic under consideration for future consumer reports includes oncology treatments.

PUBLICATIONS AVAILABLE:

Publication Number	Report Title	Date	Publication Cost
	Show Me Buyer's Guide: Hospital Emergency Services (1997)	Fall 1997	
18.7	Kansas City/Northwestern Missouri Region		$3.00
18.8	St. Louis/Eastern Missouri Region		$3.00
18.9	Central/Northeastern Missouri Region		$3.00
18.10	Southeastern Missouri Region		$3.00
18.11	Southwestern Missouri Region		$3.00
18.12	Hospital Emergency Services: Volume II: Technical Report		$10.00
	Show Me Buyer's Guide: Outpatient Procedures (1996)	June 1996	
17.16	Kansas City/Northwestern Missouri Region		$3.00
17.17	St. Louis/Eastern Missouri Region		$3.00
17.18	Central/Northeastern Missouri Region		$3.00
17.19	Southeastern Missouri Region		$3.00
17.20	Southwestern Missouri Region		$3.00
	Show Me Buyer's Guide: Outpatient Procedures (1995)	August 1995	
17.11	Kansas City/Northwestern Missouri Region		$3.00
17.12	St. Louis/Eastern Missouri Region		$3.00
17.13	Central/Northeastern Missouri Region		$3.00
17.14	Southeastern Missouri Region		$3.00
17.15	Southwestern Missouri Region		$3.00

Consumer Guides to Health Care (continued)

PUBLICATIONS AVAILABLE (continued):

Publication Number	Report Title	Date	Publication Cost
	Show Me Buyer's Guide: Outpatient Procedures (1994)	October 1994	
17.6	Kansas City/Northwestern Missouri Region		$3.00
17.7	St. Louis/Eastern Missouri Region		$3.00
17.8	Central/Northeastern Missouri Region		$3.00
17.9	Southeastern Missouri Region		$3.00
17.10	Southwestern Missouri Region		$3.00
	Show Me Buyer's Guide: Obstetrical Services	April 1994	
18.1	Kansas City/Northwestern Missouri Region		$3.00
18.2	St. Louis/Eastern Missouri Region		$3.00
18.3	Central/Northeastern Missouri Region		$3.00
18.4	Southeastern Missouri Region		$3.00
18.5	Southwestern Missouri Region		$3.00
18.6	Obstetrical Services: Volume II: Technical Report		$10.00
	Show Me Buyer's Guide: Outpatient Procedures ('92-'93)	December 1993	
17.1	Kansas City/Northwestern Missouri Region		$3.00
17.2	St. Louis/Eastern Missouri Region		$3.00
17.3	Central/Northeastern Missouri Region		$3.00
17.4	Southeastern Missouri Region		$3.00
17.5	Southwestern Missouri Region		$3.00

RELATED PUBLISHED ARTICLES:

Fraas J. Buyer's Guide to Hospital Emergency Services. Missouri Monthly Vital Statistics 1997;31(7).

Longo DR, Land G, Schramm W, Fraas J, Hoskins B, Howell V. Consumer reports in health care: Do they make a difference in patient care? JAMA 1997;278(19):1579–84.

Context: Consumer reports in health care are a relatively recent phenomenon. Primarily designed to assist consumers in making more informed decisions about their personal health care, they appear to have an important by-product—they led to positive changes in the behavior of clinicians and health care delivery organizations. While there has been much speculation on their impact on health care consumer behavior, consumer reports offer an effective strategy in improving the quality of patient care.

Objective: To examine the impact of an obstetrics consumer report developed and issued by the Missouri Department of Health on hospital behavior.

Design and Setting: A retrospective study of hospital behavior using both primary survey and secondary clinical data.

Participants: Consumer reports were issued in 1994 to all Missouri hospitals providing obstetrical services (n=90). A survey was conducted a year later, and the results analyzed with other available data to determine the effect of the report. Two hospitals discontinued obstetrical services by the time of the survey; of the remaining 88 hospitals, 82 (93%) responded to the survey.

Main Outcome Measures: The following outcomes were examined: (1) number and percent of hospitals that previously did not have services at the time report was issued, but had, or planned to have, services after guide was published;(2) the percentage of obstetrical policies that were changed, planned to change, or are under discussion for change (car seat program, obstetrical follow-up services, formal transfer agreement, nurse educator for breast-feeding, and availability of tubal ligations); and (3) clinical outcomes, including satisfaction, appropriateness of charges, and cesarean delivery, high-risk infant transfer, ultrasound, vaginal birth after cesarean, very low birth weight and newborn death.

Results: Within 1 year of the report, approximately 50% of hospitals that did not have car seat programs, formal transfer agreements or nurse educators for breast-feeding prior to the report either instituted or planned to institute these services. Hospitals in competitive markets that did not offer one of these services at the time of the report were more likely to institute a service, and/or were about twice as likely to consider improving several indicators. Clinical outcome indicators all improved in the expected direction.

Conclusion: Public release of consumer reports may be useful in assisting consumers to make informed health care choices, but also in facilitating improvement in the quality of hospital services offered and care provided. Changes occur especially in competitive markets.

Consumer Guides to Health Care (continued)

RELATED PUBLISHED ARTICLES (continued):

Land G, Longo DR, Hoskins B, Fraas J. The development of a consumer guide on the quality of obstetrical services: The Missouri experience. J Public Health Mgt & Pract 1995;1(3):35–43.

Missouri published a consumer guide on obstetrics in the spring of 1994. This article describes the events and processes that led to the publication of the guide. The guide provided obstetrical quality-of-care indicators on structure, process and outcomes for each facility doing deliveries. The article describes the principles followed in developing the guide, how the indicators were chosen, how the guide was constructed, and what data sources were used. Several lessons were learned including: a guide opens communication within the provider community, development of a guide is a long process, an advisory committee and preliminary review of findings by providers are necessary, and strong technical expertise is essential.

CONTACT FOR COPIES OF REPORTS OR ADDITIONAL INFORMATION:

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Health Care Procedure Charges

Sections 192.665–667, RSMo require hospitals and ambulatory surgical centers to report charges for leading diagnoses and procedures to the Department of Health.

The Department of Health collects this information, including number of cases, through an annual survey, and publishes the information in its buyer's guides. A copy of the survey form can be found on pages A-27 to A-34 of the Appendix. For more information on buyer's guides, see Consumer Guides to Health Care found on pages 103–105 of this publication.

DATA ITEMS ON TAPE:

(Data items available 1992 to the present unless otherwise indicated)

Data Items

Operations on the Eye
- Cataract removal, with lens implant
- Removal of secondary cataract
- Secondary insertion of intraocular lens
- Radial keratotomy

Breast Operations
- Screening mammography
- Breast biopsy, incisional
- Removal of breast lesion

Gynecological Procedures
- Diagnostic D & C
- Tubal ligation
- Laser destruction of cervical lesion
- Conization of cervix

Digestive/Urinary Procedures
- Inguinal hernia repair
- Diagnostic laparoscopy
- Cystoscopy
- Cholecystectomy (gall bladder removal)
- Extracorporal shockwave lithotripsy
- Hemorrhoidectomy (1993-present)

Ear, Nose, Mouth and Throat Procedures
- Tonsillectomy with adenoidectomy
- Tonsillectomy without adenoidectomy
- Myringotomy, with or without tubes
- Nasal fracture, closed reduction
- Surgical correction of deviated nasal septum

Musculoskeletal Operations
- Ganglionectomy, hand or wrist
- Bunionectomy
- Hammertoe correction
- Knee arthroscopy, diagnostic
- Knee arthroscopy, removal of cartilage

Data Items

Endoscopic Procedures
- Colonoscopy, diagnostic
- Sigmoidoscopy, diagnostic
- Upper GI endoscopy, diagnostic
- Bronchoscopy, diagnostic
- Endoscopy of small intestine, diagnostic
- Dilation of esophagus

Nervous System Operations
- Carpal tunnel release
- Epidural pain block

Operations on the Cardiovascular System
- Varicose vein ligation and stripping
- Cardiac catheterization, left heart

CAT Scans
- CAT scan of head, without contrast
- CAT scan of head, with and without contrast
- CAT scan of abdomen, without contrast
- CAT scan of abdomen, with and without contrast

Magnetic Resonance Imaging
- MRI of brain, without contrast
- MRI of brain, with and without contrast
- MRI of spinal canal, with contrast
- MRI of spinal canal, with and without contrast

Other Diagnostic Procedures
- Electrocardiogram
- Treadmill stress test
- Diagnostic ultrasound, abdomen/retroperitoneum
- Diagnostic ultrasound, gravid uterus
- Contrast myelogram of spine

FEE FOR DATA:

The fee for data requiring computer programming will include a $5 file access charge, $30 per hour research analyst time and $2.50 postage and handling. State and local health departments, other Missouri state agencies and local government, media/media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

CONTACT FOR DATA OR ADDITIONAL INFORMATION:

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Health Facilities

Collection of data on health facilities was started in 1974 with funding from the National Center for Health Statistics (NCHS). Hospital and nursing facility information was one of the seven major components of the Cooperative Health Statistics System. The contract called for a computer tape containing specific hospital and nursing home data, called a Minimum Data Set, to be sent to NCHS annually.

From 1974 to 1979, the Missouri Center for Health Statistics (MCHS) met the contract requirements through annual surveys sent to hospitals, nursing homes, boarding homes, residential care facilities and other health facilities. Surveys were processed through a data entry system and the information stored on magnetic media from which the Minimum Data Set was extracted and sent to NCHS.

The NCHS contract expired, and faced with funding reductions, MCHS discontinued the survey of other health facilities after 1979. From 1982 to 1989, the nursing home survey did not include items relating to cost of care. Boarding homes became known as residential care facilities, and beginning in 1990 were surveyed separately from skilled nursing and intermediate care facilities. In 1990, maximum monthly charges were again included in the survey and remains as the only source for this information. The Annual Nursing Home Survey—1997 can be found on pages A-35 to A-36 of the Appendix. The Annual Residential Care Facility Survey—1997 can be found on pages A-37 to A-38 of the Appendix.

In mid-1980, MCHS combined efforts with the American Hospital Association (AHA) to survey hospitals. This cooperative agreement works very well. The Missouri Hospital Association (MHA) handles the printing, mailing and receiving of the surveys, which allows them to obtain the financial data required by AHA. A copy of the 1996 Annual Licensing Survey of Missouri Hospitals form can be found on pages A-39 to A-77 of the Appendix.

From the MCHS hospital data file, an AHA tape is created, sent to MHA and merged with the financial tape. Selected summary statistics are published annually in the AHA's Statistical Guide.

Profiles on hospitals, nursing homes and residential care facilities are published annually. These profiles are reference documents that give detailed information on each facility, and provide summary tables of selected utilization.

Data items are available on computer generated lists, computer generated labels, diskette, cartridge and tape. Specialized analytic reports are published at periodic intervals. Other data are available upon request.

HOSPITAL DATA ITEMS ON TAPE:

(Source Document: Annual Licensing Survey of Missouri Hospitals)

Data Items	Years Available
Facility Name	1976–present
Address	1976–present
City	1976–present
County	1976–present
Zip	1976–present
Reporting Period Beginning/Ending Date	1976–present
Type of Ownership Control	1976–present
Management Organization	1982–present
Licensed Beds by Unit	1976–present
Staffed Beds by Unit	1976–present
Type of Service	1976–present
Patient Census	1976–present
Patient Days	1976–present
Discharges by Unit	1976–present
Total Staffed Beds	1976–present
Total Employees	1976–present

Data Items	Years Available
Outpatient Visits	1976–present
Emergency Visits	1976–present
Heart Surgeries	1976–present
Rehabilitation	1976–present
CT Scan Procedures	1982–present
Births	1978–present
JCAH Accreditation	1981–present
AOA Accreditation	1981–present
CARF Accreditation	1988–present
Emergency Room Level	1993–present
Trauma Level Certification	1985–present
Bone Marrow Transplant	1990–1993, 1995–present
Network Participant	1993–present
Network Name & Address	1993–present
Teaching Institution	1988–present
HMO Contracts	1994–present

Health Facilities (continued)

Data Items	Years Available
PPO Contracts	1994–present
Full Time Staff by Occupation	1976–present
Part Time Staff by Occupation	1976–present
Cardiac ICU	1976–present
Medical Surgical ICU	1976–present
Ultrasound	1980–present
Abortion Services	1976–1985
Diagnostic X-ray Procedures	1980–1984
Diagnostic Radioisotope	1980–1984
Renal Dialysis Procedures	1980–1985
Physical Therapy Visits	1980–1985
Occupational Therapy Visits	1980–1985
Satellite Clinic Services	1985
Cardiac Catheterizations Lab	1980–present
Cardiac Catheterizations	1980–present
Long-Term Beds	1980–present
Long-Term Admissions	1980–present
Long-Term Inpatient Days	1980–present
Long-Term Discharge Days	1980–present
Radiation Therapy Visits	1976-1985, 1996–present
Total Discharge Days	1980–present
Medicare/Medicaid Discharges	1983–present
Medicare Admissions	1980–1982
Medicare Inpatient Days	1980–present
Medicaid Admissions	1980–1982
Medicaid Inpatient Days	1980–present
Home Care	1980–present
Family Planning Visits	1980–1982
Operating Rooms	1980–1985, 1995–present
Payroll Expenses	1976–present
Non payroll Expenses	1976–present
Bassinets	1978–present
Neonatal Inpatient Days	1980–present
MRI Procedures	1985–present
Geriatric Services	1986–present
Hospital Alliance Name & City	1986–present
Health Care System Name	1986–present
Reproductive Health Services	1986–present
Contract Arrangement w/Paid Physician	1986–1990
Neonatal Physician Specialties	1986, 1989–present
Selected Perinatal Services	1986, 1990–present
Mammographies	1987–present
Pap Tests	1987–present
Sigmoidoscopies	1987–present
Smoking Cessation Participants	1987–present
Health Promotion Services	1988–present
Resident/Intern Man Hours	1988–1993
Medicare Provider Number	1988–present
ESWL Treatments	1989–present
Fixed or Mobile Classification of ESWL	1989–1995
Full Time Trainees	1980–present
Part Time Trainees	1980–present
HMO Member	1980–present
Chief of Staff	1976–present
Psychiatric Visits	1980–1986
Bed Change Date	1981–present

Data Items	Years Available
Long-Term Census	1981–present
Total Expenses	1976–present
Average Beds by Service Unit	1981–1991
Nursing Home Staff	1982–present
Swing-Bed Utilization	1984–present
Birthing Rooms	1984–present
LDRP Rooms	1990–present
Home Health Full & Part Time	1990–present
Angioplasty Treatments	1990–present
Fixed or Mobile Classification MRI	1990–present
Fixed or Mobile Classification CT Scan	1990–present
Positive Emission Tomography (PET)	1990–present
Single Photon Emission Tomography (SPECT)	1990–present
Observation Visits	1992–present
Nutritional Counseling	1992–present
Insurance Products Available	1993–present
Tissue Transplant	1990–1993, 1995–present
Nursing Home RNs Full & Part Time	1990–1993
Nursing Home LPNs Full & Part Time	1990–1993
Non Cardiac Catheterizations	1994–present
Obstetric Clinic	1992–present
Pediatric Clinic	1992–present
High Risk Infant Clinic	1992–present
High Risk Prenatal Clinic	1992–present
Allied Professional Staff	1989–present
Physician Arrangements:	
Independent Physician Associations	1993–present
Group Practice	1993–present
Physician Hospital Organization	1993–present
Medical Staff Organization	1993–present
Medical Foundation	1993–present
Integrated Salary Model	1994–present
Equity Model	1994–present
Assisted Living	1994–present
Case Management	1994–present
Children's Wellness	1994–present
Community Outreach	1994–present
Crisis Prevention	1994–present
Dental Service	1994–present
Health Fair	1994–present
Health Information Center	1994–present
Meals on Wheels	1994–present
Nutrition Programs	1994–present
Patient Education Center	1994–present
Primary Care Department	1994–present
Reproductive Health	1994–present
Sleep Clinic	1995–present
Pain Clinic	1995–present
Retirement Housing	1994–present
Support Groups	1994–present
Teen Outreach	1994–present
Transportation to Health Facilities	1994–present
Urgent Care Center	1994–present
Sports Medicine	1987–present
Women's Center	1987–present

Health Facilities (continued)

NURSING HOME AND RESIDENTIAL CARE FACILITY DATA ITEMS ON TAPE:

(Source Document: Annual Nursing Home Survey and Annual Residential Care Facility Survey)

Data Items	Years Available
Facility Name	1979–present
Address	1979–present
City	1979–present
County	1979–present
Zip	1979–present
Telephone Number	1979–present
Total of Ages by Gender	1979–present
Occupancy Rate	1979–present
Staffed Beds	1979–present
Discharges	1979–present
Deaths	1979–present
Full Time Staff by Occupation	1979–present
Part Time Staff by Occupation	1979–present
Ownership Details	1979–present
Number Receiving Basic Nursing Care	1979–1980
Monthly Charge	1979–1982, 1990–present
Supervision over Self-Administered Medication	1979–1982
Total Payroll & Non Payroll Expenses	1974–1982
Expansion	1974–1982
Reporting Period– Beginning Date/Ending Date	1979–present
Medicaid/Medicare Utilization	1979–present

Data Items	Years Available
Volunteer Services	1979–present
Acceptance of Male & Female	1976–1986
Patient Origin	1977–1980
Part of Facility Under Other License	1977–1991
Source of Admissions	1978–present
Destination of Discharges	1978–present
Man Hours by Occupation	1978–1980
Consultants by Occupation	1980–present
Races by Gender	1980–present
Source of Funding	1980–1991
Vacancies by Occupation	1981, 1987–1993
Number Taking Insulin	1981–1990
Number Admitted from Mental Hospital	1983–1991, 1993–present
Ombudsman	1984–1991
Age Group 95 and Over	1987–present
Adult Day Care Availability	1987–1991
Alzheimer's Services/Unit	1987–1991, 1995–present
Number of Brain Injured	1987–1991
Participation in RCF/Personal Care Program	1994–present
Fax Number	1995–present

PUBLICATIONS AVAILABLE:

Publication Number	Report Title	Date	Publication Cost
3.49	**Missouri Hospital Profiles 1996**	June 1997	$25.00
3.47	**Missouri Hospital Profiles 1995**	June 1996	$25.00
3.45	**Missouri Hospital Profiles 1994**	June 1995	$25.00
3.43	**Missouri Hospital Profiles 1993**	June 1994	$25.00
3.41	**Missouri Hospital Profiles 1992**	July 1993	$25.00
3.39	**Missouri Hospital Profiles 1991**	June 1992	$25.00
3.36	**Missouri Hospital Profiles 1990**	August 1991	$25.00
3.33	**Missouri Hospital Profiles 1989**	July 1990	$25.00
3.30	**Missouri Hospital Profiles 1988**	August 1989	$25.00
3.27	**Missouri Hospital Profiles 1987**	August 1988	$25.00
3.24	**Missouri Hospital Profiles 1986**	July 1987	$25.00
3.21	**Missouri Hospital Profiles 1985**	July 1986	$25.00
3.19	**Missouri Hospital Profiles 1984**	October 1985	$25.00
3.17	**Missouri Hospital Profiles 1983**	May 1984	$25.00
3.15	**Missouri Hospital Profiles 1982**	May 1983	$25.00
3.13	**Missouri Hospital Profiles 1981**	May 1982	$25.00
3.8	**Missouri Hospital Profiles 1980**	April 1981	$25.00

Health Facilities (continued)

PUBLICATIONS AVAILABLE (continued):

Publication Number	Report Title	Date	Publication Cost
3.50	**Missouri Nursing Home and Residential Care Facility Profile 1996**	August 1997	$25.00
3.48	**Missouri Nursing Home and Residential Care Facility Profile 1995**	August 1996	$25.00
3.46	**Missouri Nursing Home and Residential Care Facility Profile 1994**	August 1995	$25.00
3.44	**Missouri Nursing Home and Residential Care Facility Profile 1993**	October 1994	$25.00
3.42	**Missouri Nursing Home and Residential Care Facility Profile 1992**	November 1993	$25.00
3.40	**Missouri Nursing Home and Residential Care Facility Profile 1991**	June 1992	$25.00
3.37	**Missouri Nursing Home and Residential Care Facility Profile 1990**	October 1991	$25.00
3.34	**Missouri Nursing Home and Residential Care Facility Profile 1989**	October 1990	$25.00
3.31	**Missouri Nursing Home and Residential Care Facility Profile 1988**	October 1989	$25.00
3.29	**Missouri Nursing Home and Residential Care Facility Profile 1987**	December 1988	$25.00
3.25	**Missouri Nursing Home and Residential Care Facility Profile 1986**	August 1987	$25.00
3.23	**Missouri Nursing Home and Residential Care Facility Profile 1985**	October 1986	$25.00

FEE FOR DATA:

The fee for data requiring computer programming will include a $5 file access charge, $30 per hour research analyst time and $2.50 postage and handling. Computer generated lists cost $25, computer generated labels start at $45 per 1,000, diskettes cost $100 each and tapes/cartridges cost $250, plus $2.50 postage and handling per order. State and local health departments, other Missouri state agencies and local government, media/media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

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Health Manpower

The goal of the Missouri Center for Health Statistics (MCHS) manpower component is to provide comprehensive data on health manpower in Missouri. When MCHS was organized in 1973, little was known about the location of most of the health professionals in the state. Even less was known about other variables which affect manpower supplies, such as age or specialty distributions. Various agencies had conducted periodic, uncoordinated surveys but little reliable manpower data existed that licensure boards could use to respond to requests for information about active health professionals practicing in Missouri. Thus, requests to licensure boards for such information usually went unanswered.

Since the advent of the health manpower component, arrangements have been made with the licensure boards for MCHS to provide data processing assistance and to answer requests for manpower information. Other surveys which previously were conducted independently are now coordinated so that health professionals do not receive multiple surveys from various organizations. State and national organizations support this coordinated collection of manpower data because it has resulted in improved rates and better quality data.

Since the mid-1960s, the Missouri Department of Health (DOH) has been involved with health manpower activities. License renewals were prepared by DOH personnel for the State Board of Registration for the Healing Arts, the Missouri Veterinary Medical Board and the State Board of Nursing. As a by-product of this activity, DOH obtained counts of the various professions licensed by those boards for the state as a whole and for individual counties.

In July 1970, the State Board of Health and the Governor's Advisory Council for Comprehensive Health Planning recognized the need for more detailed information about health manpower in the state and gave priority to a study of physician manpower as the first project of MCHS in this area. Data for that report were collected via a survey mailed to physicians with their 1971 license renewal notices.

The second major activity of MCHS in the area of health manpower was preparing a report on registered nurses. With the cooperation of the State Board of Nursing, information on nurses in Missouri was obtained from the 1972 nationwide inventory of RNs conducted by the American Nurses' Association.

Because of its background in the field of health manpower and the interest generated by the information contained in those reports, MCHS applied for a contract with the National Center for Health Statistics to implement in Missouri the health manpower component of the Cooperative Health Statistics System. That contract, awarded in July 1974, permitted expansion of the manpower effort to a total of 13 licensed health professions: chiropractors, dental hygienists, dentists, medical doctors, doctors of osteopathy, registered nurses, licensed practical or vocational nurses, optometrists, pharmacists, physical therapists, podiatrists, veterinarians and nursing home administrators. Although the manpower component is no longer funded through the Cooperative Health Statistics System, other sources of funding have allowed the continuation of manpower data collection.

During the 1975 licensure renewal period, MCHS in cooperation with the Division of Professional Registration enclosed a survey form with the license renewal applications mailed to all licensees. The results of this survey were added to the master file kept at MCHS. From 1975 through 1977, annual surveys were conducted to establish a solid manpower database. Since that time, surveys have been distributed with license renewal forms on a staggered basis for all professions except MDs and DOs, who are surveyed annually. In 1980, nursing home administrators were dropped from our schedule and psychologists were added. Data items have been expanded, whenever possible, to incorporate items of interest to data users both in and out of Missouri. MCHS and the State Boards of Registration cooperate in follow-up procedures to keep the data as timely, complete and accurate as possible.

A solid manpower database now exists for all 13 licensed health professions containing accurate, timely information. Also, a limited database has been setup for the following occupations: speech pathologists, clinical audiologists, social workers, licensed professional counselors, occupational therapists, certified occupational therapist assistants, respiratory therapists and physician assistants.

Manpower reports providing summary information on various health occupations are published as needed. Listings and frequency tables on the following professions are published routinely and are available upon request: chiropractors, dental hygienists, dentists, physicians (MDs, DOs), registered nurses, licensed practical or vocational nurses, optometrists,

pharmacists, physical therapists, podiatrists, veterinarians, speech pathologists and clinical audiologists, social workers, psychologists, licensed professional counselors, occupational therapists and certified occupational therapist assistants.

POLICY FOR RELEASE OF INFORMATION:

All requests for data which relate to confidential information must first be reviewed and approved by the appropriate licensure board.

MANPOWER DATA ITEMS ON TAPE:

(Source Document: Questionnaires mailed to health professionals with license renewals)

Data Items*	Years Available**
Identification Number	1975–present
Name	1975–present
Date of First Licensure	1975–present
Date of Birth (MMDDYY)	1975–present
Sex	1975–present
Race	1975–present
Education	1975–present
School	1975–present
Year of Graduation	1975–present
Years Active	1975–1993
Weeks Active in the Last Year	1975–1993
Active Last Year	1975–1993
Location One Year Ago	1975–1993
City	1975–1993
County	1975–1993
Region	1975–1993
State	1975–1993
Zip Code	1975–1993
Current Activity Status	1975–present
Primary Employment Address	1975–present
City	1975–present
County	1975–present
Region	1975–1993
State	1975–present
Zip Code	1975–present

Data Items*	Years Available**
Secondary Employment Address	1975–1993
City	1975–1993
County	1975–1993
Region	1975–1993
State	1975–1993
Zip Code	1975–1993
Specialties	1975–present
Primary	1975–present
Secondary	1975–present
Tertiary	1975–present
Percent of Time Spent in Each Specialty	1975–present
Hours per Week Spent in:	1975–present
Patient Care	1975–present
Administration	1975–present
Teaching	1975–present
Research	1975–present
Other	1975–present
Total	1975–present
Mailing Address	1975–present
Street	1975–present
City	1975–present
County	1975–present
Region	1975–1993
State	1975–present
Zip Code	1975–present

*Only basic data items have been listed. Additional data items are available upon request.
**Availability limited to certain data years and/or professions.

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
2.30	**Missouri Health Manpower, 1993** This report provides summary information on the health occupations: physicians and registered nurses.	December 1995	$15.00
2.29	**Missouri Health Manpower, 1992** This report provides summary information on the health occupations: chiropractors, dentists, dental hygienists, licensed practical nurses, optometrists, pharmacists and physicians.	August 1995	$15.00

Health Manpower (continued)

PUBLICATIONS AVAILABLE (continued):

Publication Number	Report Title and Summary	Date	Publication Cost
2.28	**Missouri Health Manpower, 1991** This report provides summary information on the health occupations: medical doctors, doctors of osteopathy, and registered nurses.	May 1992	$15.00
2.27	**Missouri Health Manpower, 1990: Part II** This report provides summary information on the health occupations: dentists, dental hygienists, licensed practical nurses, pharmacists, veterinarians, and optometrists.	November 1991	$15.00
2.26	**Missouri Health Manpower, 1990: Part I** This report provides summary information on the health occupations: medical doctors, doctors of osteopathy, psychologists, physical therapists, and chiropractors.	April 1991	$15.00
2.25	**Missouri Health Manpower, 1989** This report provides summary information on the health occupations: medical doctors, doctors of osteopathy, registered nurses, and podiatrists.	September 1990	$15.00
2.24	**Missouri Health Manpower, 1988 Part II** This report provides summary information on the health occupations: dentists, dental hygienists, licensed practical nurses, pharmacists, veterinarians, and optometrists.	February 1990	$15.00
2.23	**Missouri Health Manpower, 1988: Part I** This report provides summary information on the health occupations: medical doctors, doctors of osteopathy, psychologists, physical therapists, and chiropractors.	February 1989	$15.00
2.22	**Missouri Health Manpower, 1987** This report provides summary information on the health occupations: medical doctors, doctors of osteopathy, and registered nurses.	April 1988	$15.00
2.21	**Missouri Health Manpower, 1986: Part II** This report provides summary information on the health occupations: dentists, dental hygienists, licensed practical nurses, pharmacists, veterinarians, and optometrists.	February 1988	$15.00

FEE FOR DATA:

The fee for data requiring computer programming will include a file access charge, $30 per hour research analyst time and $2.50 postage and handling. File access charges are as follows: Chiropractors $7, Dental Hygienists $9, Dentists $9, Licensed Practical Nurses $11, Licensed Professional Counselors $7, Occupational Therapists and Certified Occupational Therapy Assistants $7, Optometrists $5, Pharmacists $9, Physical Therapists $7, Physicians $21, Podiatrists $5, Psychologists $7, Registered Nurses $21, Respiratory Therapists $7, Social Workers $7, Speech Pathologists & Clinical Audiologists $5 and Veterinarians $7. Labels and lists may be obtained for a fee. State and local health departments, other Missouri state agencies and local government, media/media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

Single copy orders for manpower reports from professional associations representing the profession(s) or educational institutions involved in educating the various profession(s) included in a specific report will be filled at no charge. Multiple-copy orders intended for distribution to local units of state professional organizations will also be provided upon request.

CONTACT FOR DATA, REPORTS OR ADDITIONAL INFORMATION:

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Health Status Utilization Indicators

Some reports developed by the Missouri Center for Health Statistics require compilation of data from more than one data component. Consequently, such reports are published as a series independent of any particular surveillance system. Since 1977, eleven of these publications have been produced using multiple data systems and more such reports will be initiated as the need arises.

MULTIPLE DATA SYSTEM PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
6.11	**Missouri Maternal and Infant Health Status Indicators** This report provides a common set of 45 indicators for Missouri health districts, counties, and selected cities. Most of the indicators represent multiple years of data ending with 1995.	December 1996	$15.00
6.10	**Missouri Healthy People 2000: Consensus Set of CDC Health Status Indicators** A consensus set of 18 health status indicators recommended by the Centers for Disease Control and Prevention (CDC) are presented by county, health district and selected cities. Most of the indicators represent multiple years ending with 1993.	June 1995	$15.00
6.9	**Missouri Elderly Health Status and Utilization Indicators** A common set of 44 indicators are presented on the status of health for persons 65 and over by health district, county and Regional Planning Commission Area.	October 1990	$10.00

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Hospital Revenues

In 1991, the Missouri Department of Health began publishing the Missouri Hospital Revenues report. The original source of the financial information presented in these reports were audited financial statements or, if audited statements were not available, Worksheets G-3 from the Medicare Cost Report, filed with the Division of Medical Services (DMS), Department of Social Services. These reports include total occupancy, total revenues, operating revenues by hospital/location, urban/rural hospital revenues and profiles of financial and utilization data by hospital. Each hospital is provided a complimentary copy of this report.

Medicare cost reports are mandated for participation in the Medicare and Medicaid programs, and the Medicaid program requests that audited financial statements be submitted. It should be noted that both sets of records have their limitations, and because of certain Medicare reporting requirements, are not always the same.

Reporting financial information to the Department of Health, either directly or through the Division of Medical Services, became mandatory in 1992 with the passage of sections 192.665 and 192.667, RSMo.

DATA ITEMS ON TAPE:

(Source Document: Audited financial statements of hospitals or Worksheets G-3 from the Medicare Cost Report)

Data Items	Years Available
Name of Facility	1985–present
City	1985–present
County	1985–present
Current Assets	1985–present
Fixed Assets	1985–present
Other Assets	1985–present
Total Assets	1985–present
Current Liabilities	1985–present
Long Term Liabilities	1985–present
Fund Balance	1985–present
Total Liabilities and Fund Balance	1985–present
Gross Revenue from Inpatient	1985–present
Gross Revenue from Outpatient	1985–present
Gross Revenue from Medicare	1985–present
Gross Revenue from Medicaid	1985–present
Gross Revenue from Other Government	1985–present
Gross Revenue from Nongovernment	1985–present
Total Gross Patient Revenue	1985–present
Charity Care	1985–present
Bad Debt	1985–present
All Other Deductions	1985–present

Data Items	Years Available
Total Allowance and Deductions	1985–present
Net Patient Revenue	1985–present
Tax Revenue/Other Government Appropriations	1985–present
Other Operating Revenue	1985–present
Total Operating Revenue	1985–present
Operating Expenses	1985–present
Net Income from Operations	1985–present
Nonoperating Gains and Losses	1985–present
Income Before Extraordinary Items	1985–present
Net Income	1985–present
Charity Care/Bad Debt at Cost	1985–present
Funded Depreciation Balance	1985–present
Operating Margin	1985–present
Margin Before Extraordinary Items	1985–present
Total Margin	1985–present
Markup Percent	1985–present
Licensed Beds	1985–present
Inpatient Days	1985–present
Discharges	1985–present
Average Length of Stay	1985–present
Occupancy	1985–present

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
16.3	**Missouri Hospital Revenues 1990–1995** This report includes total occupancy, total revenues, operating revenues by hospital/location, urban/rural hospital revenues in Missouri 1995 and profiles of financial and utilization data by hospital.	August 1997	$20.00
16.2	**Missouri Hospital Revenues 1988–1993** This report includes total occupancy, total revenues, operating revenues by hospital/location, urban/rural hospital revenues in Missouri 1993 and profiles of financial and utilization data by hospital.	January 1995	$20.00

Hospital Revenues (continued)

PUBLICATIONS AVAILABLE (continued):

Publication Number	Report Title and Summary	Date	Publication Cost
16.1	**Missouri Hospital Revenues 1986-1991** This report includes total occupancy, total revenues, operating revenues by hospital/location, urban/rural hospital revenues in Missouri 1991 and profiles of financial and utilization data by hospital.	August 1993	$20.00
	Missouri Hospital Revenues 1985–1990 This report includes total occupancy, total revenues, operating revenues by hospital/location and urban/rural hospital revenues in Missouri 1990.	January 1992	$20.00

FEE FOR DATA:

The fee for data requiring computer programming will include a $5 file access charge, $30 per hour research analyst time and $2.50 postage and handling. State and local health departments, other Missouri state agencies and local government, media/media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

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Birth Defects Registry

The Birth Defects Registry was developed to provide birth defect data for environmental surveillance, epidemiologic studies and program evaluation. Data are available for liveborn Missouri residents beginning with 1980 births. Birth defects included in the registry are all diagnoses in the congenital anomalies section (740–759) of the International Classification of Diseases–9th Revision (ICD-9). Additionally, data on inborn metabolic disorders and other disorders of prenatal origin are included.

The Birth Defects Registry is a compilation of data available to the Department of Health through several sources. The basic record is the birth certificate. Birth defect information is recorded on the birth certificate, but in most states, including Missouri, there is significant underreporting. Therefore, birth defect data from the following sources are linked to the appropriate birth certificate:

- Death Certificates—For deaths up to one year of age.
- Newborn Patient Abstract Reports—Available for approximately 94 percent of Missouri births.
- Pediatric Patient Abstract Reports—For hospital admissions up to one year of age.
- State Program Data—Reports for children with birth defects admitted in the first year of life to state programs such as Children with Special Health Care Needs (CSHCN), First Steps and the sickle cell anemia and metabolic disease programs.
- Neonatal Intensive Care Unit (NICU) Reports—Hospital-provided reports for all infants treated in NICUs.

Because of the time involved in obtaining and linking records and the one-year data collection period for death, pediatric hospitalization and state program data, the data set for a calendar year cannot be finalized until almost two years after the close of the calendar year (e.g., 1996 data will not be finalized until late in 1998). In order to make some birth defect data available more quickly, we have set a goal of having an interim data set, including all data except pediatric patient abstract reports, available 18 months after the close of the calendar year.

The first report containing data for 1993–1995 is expected to be published in early 1998.

DATA ITEMS ON TAPE:

Data Items	Years Available	Data Source
All Birth Certificate Items	1980–present	Birth Certificate
Cause of Death (ICD-9 code)	1980–present	Death Certificate
Age at Death	1980–present	Death Certificate
Birth Defect Diagnoses (ICD-9 codes)	1980–present	Newborn Patient Abstract
Length of Stay	1980–present	Newborn Patient Abstract
Birth Defect Diagnoses (ICD-9 codes)	1993–present	Pediatric Patient Abstract
Birth Defect Diagnoses (ICD-9 codes)	1980–present	Children With Special Health Care Needs
	1993–present	Other State Data
Birth Defect Diagnoses (ICD-9 codes)	1980–1994	Neonatal Intensive Care Unit Report

FEE FOR DATA:

The fee for data requiring computer programming will include a $85 file access charge, $30 per hour research analyst time and $2.50 postage and handling. State and local health departments, other Missouri state agencies and local government, media/media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

Birth Defects Registry (continued)

RELATED PUBLISHED ARTICLES:

Edmonds LD. State birth defects surveillance programs directory. Teratology 1997;56(1/2):89.

Edmonds LD. Birth defects surveillance data from selected states. Teratology 1997;56(1/2):146–48.

March of Dimes Birth Defects Foundation Greater Missouri Chapter. Maternal and infant health needs assessment, April 1996. St. Louis, MO: March of Dimes Birth Defects Foundation Greater Missouri Chapter, 1996.

Lary JM, Edmonds LD. Prevalence of spina bifida at birth—United States, 1983–1990: a comparison of two surveillance systems. MMWR 1996;45(SS-2):15–26.

Problem/Condition: Spina bifida is a birth defect of the spinal column that is a substantial contributor to serious developmental disabilities in the United States. The risk for spina bifida and other neural tube defects (NTDs) can be reduced if women consume 0.4 mg of folic acid before and during the first trimester of pregnancy. Public health programs are being developed to prevent many NTDs by increasing the consumption of folic acid by women of childbearing age. To assess the national impact of these programs on the prevalence of NTDs at birth, multistate surveillance is needed to monitor secular trends in birth-prevalence rates. This report summarizes a collaborative effort by CDC and state birth defect surveillance programs in 16 states to a) obtain multistate, population-based data concerning the birth prevalence and descriptive epidemiology of spina bifida and b) determine the usefulness of combining state surveillance data to monitor national trends in the birth prevalence of NTDs.

Reporting Period: This report presents data from birth defects surveillance systems in 16 states for the period 1983–1990 (specific periods covered varied by state). These findings are compared with CDC's Birth Defects Monitoring Program (BDMP) for the same period.

Description of Systems: Population-based data about live-born and stillborn infants who have spina bifida were analyzed from 16 state programs. These 16 programs differed in size and racial/ethnic composition of the populations, surveillance methods, and completeness of case ascertainment. Hospital-based data about live-born and stillborn infants who have spina bifida also were analyzed from BDMP, a passive case ascertainment surveillance system that obtains data from participating hospitals in 50 states.

Results and Interpretation: From 1983 through 1990, the birth-prevalence rate for spina bifida for the 16 states was 4.6 cases per 10,000 births; the BDMP rate was nearly identical (4.4 cases). State-specific rates varied substantially, ranging from 3.0 (Washington) to 7.8 (Arkansas). Both state-based and BDMP rates varied among racial/ethnic groups; in both systems, the rates were highest for Hispanics and lowest for Asians/Pacific Islanders. In both the state-based surveillance systems and BDMP, the annual rate of spina bifida for the total population declined during the period 1983–1990. Much of this decline can be attributed to increased prenatal diagnosis in the 1980s. However, because the decline in the rates of spina bifida and other NTDs in the United States began before the widespread availability of prenatal diagnostic services, an environmental component may have contributed substantially to the etiologies of these defects. The birth-prevalence rate of spina bifida was slightly higher among females than males. The ratio of female-to-male prevalence rates was 1.2 for both the state-based surveillance systems and BDMP. This ratio varied considerably among racial/ethnic groups and among states. The similarities of rates and trends in the birth prevalence of spina bifida between the state-based surveillance data and the BDMP data indicate that both types of surveillance systems can provide reliable information concerning national trends in the birth prevalence of spina bifida.

Actions Taken: CDC and state birth defects surveillance programs will use results from this analysis to monitor national trends in the birth prevalence of spina bifida in the United States. Aggregated state-based surveillance data about spina bifida, anencephaly, and other NTDs will facilitate the monitoring of changes in NTDs after implementation of programs to increase folic acid consumption by women of childbearing age.

Centers for Disease Control and Prevention. Down syndrome prevalence at birth—United States, 1983–1990. MMWR 1994;43(33):617–22.

Down Syndrome (DS) (trisomy 21) is one of the most serious and frequently reported birth defects among live-born infants and an important cause of mental retardation. The prevalence of DS at birth increases with increasing maternal age. Because national population-based estimates of DS have been limited, CDC analyzed data from 17 states with population-based birth defects surveillance programs to determine the birth prevalence of DS and describe trends in DS in the United States during 1983–1990. This report summarizes the findings of the analysis.

Malloy MH, Kleinman JC, Bakewell JM, Schramm WF, Land GH. Maternal smoking during pregnancy: no association with congenital malformations in Missouri 1980–83. Am J Public Health 1989;79(9):1243–46.

Using a multisource birth defects registry developed by the Missouri Center for Health Statistics for the years 1980-83, we examined the relation between maternal smoking during pregnancy and the occurrence of congenital malformations. There were 288,067 live singleton births in this data set of which 10,223 had one or more congenital malformations. When adjusted for potential confounders the odds ratio for congenital malformations in the infants of women who smoked during pregnancy was not increased (odds ratio = 0.98, 95% confidence interval = 0.94 - 1.03). We examined the relation between smoking and groups of malformations using the International Classification of Diseases, 9th Revision, as well as analyzing for certain specific malformations within each group and found no increased risk for infants of smokers.

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Induced Termination of Pregnancies

Vital statistics data have long been Missouri's primary source of health information. Missouri started collecting data on induced termination of pregnancies on a voluntary basis in 1975. The Missouri Center for Health Statistics began sending data on induced termination of pregnancy to the National Center for Health Statistics in 1978 in anticipation of federal funding. In 1979, federal funding was received for providing this data.

In 1989, Missouri revised the induced pregnancy termination report to comply with the new United States standard certificate. Several new items were added and some deleted or changed. A copy of the current Report of Induced Termination of Pregnancy (MO 580-0355) form can be found on page A-78 of the Appendix.

In 1990, the Missouri Center for Health Statistics began offering clinics the Induced Termination of Pregnancy System (ITOPS) from the Genesis Corporation. This software enables clinics to enter abortion information into a personal computer and send diskettes to the Missouri Center for Health Statistics. This generally saves the clinics and the center data entry time. About half of induced termination of pregnancies are entered through this software.

The Center for Health Information Management and Epidemiology (CHIME) officially closes the vital statistics data file on April 15 of each year, and data tapes usually are available for analysis by June. From the vital statistics data, CHIME prepares an annual report of the vital statistics for Missouri, which normally is available for distribution in October. CHIME also publishes Missouri Monthly Vital Statistics, a monthly bulletin-type report that provides provisional vital statistics data to the public and users of such data.

POLICY FOR RELEASE OF INFORMATION:

For information on the release of abortion data, see the Policy and Procedures for Release of Vital Records Information found on pages 7–8.

INDUCED TERMINATION OF PREGNANCY ITEMS ON TAPE:

(Source Document: Report of Induced Termination of Pregnancy)

Data Items	Years Available
Report Number	1975–present
Facility	1975–present
Facility Location	
City	1975–present
County	1975–present
Region	1975–present
State	1975–present
Physician's License No.*	1975–present
Patient's Residence	
State	1975–present
Region	1975–present
County	1975–present
City	1975–present
Zip Code	1975–present
Patient Number.	1975–presenT
Patient's Age	1975–present
Patient's Race	1975–present
Patient's Marital Status	1975–present

Data Items	Years Available
Patient's Education	1975–present
Date of Abortion (MMDDYY)	1975–present
Date of Last Normal Menses (MMDDYY)	1975–present
Physician's Estimate of Gestational Age	1975–present
Weeks of Gestation Computed from Date of Last Normal Menses	1975–present
No. of Previous. Pregnancies	1975–present
Born Alive, Now Living	1975–present
Born Alive, Now Dead	1975–present
Spontaneous Terminations	1975–present
Induced Terminations	1975–present
Method of Abortion	1975–present
Complications	1975–present
BPD Measure**	1985–present
Method of Estimating Gestation**	1985–present
Fetus viable**	1985–present

*Confidential information not released on tape.
**Confidential or quality control information, not released on tape

Induced Termination of Pregnancies (continued)

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
	Missouri Monthly Vital Statistics This monthly report provides provisional data on births, deaths, marriages and dissolutions of marriage. Each issue features a topic of interest on the "Focus" page.	Monthly	No Charge
	Missouri Vital Statistics (Annual Report) Published annually, this publication reports the official vital statistics for Missouri. Data from the report are available from 1911 to date, although full copies are only available from 1968. Designed as a reference document, the publication features 43 tables on births, deaths, marriages, dissolutions of marriage and induced abortions. The report format was revised in 1979 and 1989.	1968–present	No Charge

RELATED PUBLISHED ARTICLES:

Pierson VH. Missouri's parental consent law and teen pregnancy outcomes. Women Health 1995;22:47–58.

The Supreme Court decision of July 1989 upholding state regulation of abortion has led to numerous attempts to impose parental consent and/or parental notification legislation for females under the age of 18 seeking abortions. The effect of such legislation on teen pregnancy outcomes is hotly debated. Missouri vital statistics data from 1980 through 1992 are examined for the effect of such a law on pregnancy resolution choices among teens. The Missouri data suggest that since the enforcement of the parental consent statute in 1985 there has been a decrease in the selection of abortion as a pregnancy outcome, particularly among white teens. In addition there has been an increase in the percent of abortions among teens taking place in other states and an irregular but steady trend toward later abortions. The increasing number of births to unmarried mothers under the age of 18 suggest the need for specific services to help these young mothers cope.

State Center for Health Statistics. Missouri abortions 1980–1988. Missouri Monthly Vital Statistics 1994;23(11).

State Center for Health Statistics. Abortion rates in Missouri. Missouri Monthly Vital Statistics 1983;16(1).

FEE FOR DATA:

There is an assessed charge of $10 per certificate. The fee for data requiring computer programming will include a $5 file access charge, $30 per hour research analyst time and $2.50 postage and handling. For further details on other charges, see the Fee Policy on pages 11–13.

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Live Births, Fetal Deaths

Vital statistics data have long been Missouri's primary source of health information. Since 1911, the Department of Health has been the official state registrar for birth certificates. This long history of collection and recording makes vital statistics the most complete and probably the most accurate of all the sources for Missouri health data. In recent years, the Department of Health and the Missouri Center for Health Statistics (MCHS) have worked to improve the accuracy of vital statistics data and to automate processing of vital records at the original source.

Birth certificate data are used in estimating population, for evaluation of maternal and perinatal health, for the study of fertility patterns, and to assist public health officials in the conduct and evaluation of programs.

In 1973, MCHS contracted to provide Missouri birth certificate data on tape to the National Center for Health Statistics in order to enhance the quality of both Missouri's and the national vital statistics data. The contract also eliminated the duplication of Missouri data being processed at the national level. Under provisions of the contract, beginning with 1972 data, Missouri revised its coding and keypunching instructions and the editing program to assure that Missouri data conform with national standards.

Missouri birth certificates were revised in 1978 to comply with changes in the national standard certificate. A number of new items were added to the birth certificate to better identify high-risk infants. MCHS expanded its query program in 1978 to improve the reporting of most items.

In 1988, MCHS began offering hospitals the Electronic Birth Certificate software (EBC) from the Genesis Corporation. This software enables hospitals to enter birth certificate information into a personal computer and send diskettes to MCHS. This generally saves the hospital and MCHS data entry time. By 1996, 94% of Missouri's recorded births were entered using this system.

In 1989, Missouri again revised the birth certificate to comply with the new United States standard certificate. Several new items were added and some deleted or changed. A major change that took place in 1989 was the addition of check boxes for medical risk factors, congenital anomalies and complications of labor or delivery. Reporting of these items improved substantially, especially for medical risk factors and congenital anomalies. A copy of the current Certifcate of Live Birth (MO 580-0660) and the Report of Fetal Death (MO 580-0696) forms can be found on pages A-79 to A-80 of the Appendix.

The Center for Health Information Management and Epidemiology (CHIME) officially closes the vital statistics data file on April 15 of each year, and data tapes usually are available for analysis by June. From the vital statistics data, CHIME prepares an annual report of the vital statistics for Missouri, which normally is available for distribution in October. CHIME also publishes Missouri Monthly Vital Statistics, a monthly bulletin-type report that provides provisional vital statistics data to the public and users of such data.

POLICY FOR RELEASE OF INFORMATION:

A listing of persons who are born on a particular date may be disclosed upon request, but no information other than the name and the date of each birth shall be disclosed. For information on the release of confidential data, see the Policy and Procedures for Release of Vital Records Information found on pages 7–8.

BIRTH ITEMS ON TAPE:

(Source Document: Certificate of Live Birth and Report of Fetal Death)

Data Items	Years Available
Record Type	1968–present
Certificate Number	1968–present
Record Indicator	1968–present
Child's Name	1968–present
Date of Birth (MMDDYY)	1968–present
Sex	1968–present
Recorded Area:	
State	1968–present
County	1968–present
City	1968–present
Region	1972–present
Place of Birth	1972–present

Live Births, Fetal Deaths (continued)

BIRTH ITEMS ON TAPE (continued):

Data Items	Years Available
Residence Area	1972–present
State	1968–present
County	1968–present
City	1968–present
City Limits Indicator	1972–present
Census Tract (St. Louis City and County only)	1972–present
Region	1972–present
Address	1972–present
Zip Code of Residence	1972–present
Years at Present Address	1989–present
Autopsy	1972–present
Attendant Type	1968–present
Attendant Identification*	1972–present
Age of Father	1968–present
Father's Date of Birth	1989–present
Father's State of Birth	1989–present
Father's Name	
First	1972–present
Last	1972–present
Age of Mother	1968–present
Mother's Date of Birth	1989–present
Mother's State of Birth	1972–present
Mother's Name	
First	1972–present
Last	1972–present
Maiden	
Hispanic Origin	
Mother	1989–present
Father	1989–present
Race:	
Father	1972–present
Mother	1972–present
Child	1968–present
Education:	
Father	1968–present
Mother	1968–present
Program Activity	
Medicaid	1989–present
WIC	1989–present
Food Stamps	1989–present
Other Children:	
Born Alive - Now Living	1968–present
Born Alive - Now Dead	1968–present
Other Terminations	1968–present
Before 20 weeks	1968–present
After 20 weeks	1968–present
Date Last Termination (MMYY)	1972–present
Date Last Live Birth (MMYY)	1972–present
Mother's Marital Status	1968–present
Date Last Normal Menses (MMDDYY)	1972–present
Month Prenatal Care Began	1968–present
Number of Prenatal Visits	1968–present
Birth Weight	1968–present
Crown Heel Length	1989–present

Data Items	Years Available
Gestation	
Clinical Estimate	1989–present
Calculated from LNM	1968–present
Number Born	1968–present
Order Born	1968–present
Smoking during pregnancy	
(wording changed in 1989)	1978–present
Alcohol use during pregnancy	1989–present
Mother's Height	1978–present
Mother's Weight	1978–present
Mother's Weight Gain/Loss	1989–present
Apgar Scores 1 Minute	1978–present
Apgar Scores 5 Minutes	1978–present
Transferred - other facility	
Mother from other	1989–present
Infant from other	1989–present
Medical Risk Factors (check box item)	1989–present
Complications Labor/Delivery	
First Complication	1968–present
Second Complication	1972–present
All (check box item)	1989–present
Method of Delivery	
(check box item beginning 1989)	1968–present
Abnormal Conditions of Newborn	
(check box item)	1989–present
Congenital Anomalies	
First Anomaly	1968–present
Second Anomaly	1972–present
All (check box item)	1989–present
Obstetrical Procedures	
(check box item)	1989–present
Cesarean Indicator	1978–present
Fetal Death Data	
Cause	1968–present
Time Died	1972–present
Infant Death Data	
Indicator	1978–present
Year of Death	1978–present
State of Death	1989–present
Death Certificate	1978–present
Report Date:	
Month	1978–present
Day	1978–present
Week	1972–present
Year	1972–present
Source	1972–present
Change Date (MMDDYY)	1972–present
Change Code*	1972–present
Cutoff Month Code	1978–present
Original State Certificate	
(Non-Missouri Birth)	1989–present
Social Security Number	
Mother's*	1989–present
Father's*	1989–present
Paternity Affidavit indicator*	1995–present
Child's Hepatitis immunization	1996–present
Child's DCN*	1994–present

*Confidential information not released on tape.

Live Births, Fetal Deaths (continued)

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
	Missouri Monthly Vital Statistics This monthly report provides provisional data on births, deaths, marriages and dissolutions of marriage. Each issue features a topic of interest on the "Focus" page.	Monthly	No Charge
	Missouri Vital Statistics (Annual Report) Published annually, this publication reports the official vital statistics for Missouri. Data from the report are available from 1911 to date, although full copies are only available from 1968. Designed as a reference document, the publication features 43 tables on births, deaths, marriages, dissolutions of marriage and induced abortions. The report format was revised in 1979 and 1989.	1968–present	No Charge

RELATED PUBLISHED ARTICLES:

Schramm WF. Smoking during pregnancy: Missouri longitudinal study. Paediatr Perinat Epidemiol 1997;11(1): 73–83.

Maternal smoking during pregnancy has been shown to be associated with reduced birth weight and increased fetal and infant mortality. This paper examines these patterns in first and second maternally-linked singleton pregnancies from 1978 to 1990 among 176,843 Missouri resident women with known smoking status in both pregnancies. Generally women were more likely to smoke in their second pregnancies (27.4%), than in their first (25.8%). This pattern was strongest among those whose first pregnancies occurred as teenagers, and for black women. The relationships of smoking during the first and second pregnancies to outcomes in the second pregnancies were examined primarily through multivariate logistic regression. The adjusted relative risk (RR) of low birth weight (<2,500 g) in the second pregnancy to not smoking in either pregnancy was 1.82 for those who smoked during the second pregnancy only, and 1.87 for those who smoked in both pregnancies. For those who smoked in the first pregnancy only, the RR was 0.97, not significantly different from 1. Adjusted smoking RRs for small-for-gestational age were larger, while adjusted RRs for fetal and neonatal mortality were smaller than the smoking RRs for low birthweight.

Herman AA, McCarthy BJ, Bakewell JM, Ward RH, Mueller BA, Maconochie NE, Read AW, Zadka P, Skjaerven R. Data linkage methods used in maternally-linked birth and infant death surveillance data sets from the United States (Georgia, Missouri, Utah and Washington State), Israel, Norway, Scotland and Western Australia. Paediatr Perinat Epidemiol 1997;11(1):5–22.

In this paper, we describe the methods used to link birth and infant mortality and morbidity surveillance data sets into sibships using deterministic or multistage probabilistic linkage methods. We describe nine linked data sets: four in the United States (Georgia, Missouri, Utah and Washington State), and four elsewhere (Scotland, Norway, Israel and Western Australia). Norway and Israel use deterministic methods to link births and deaths into sibships. The deterministic linkage is usually dependent on the availability of national identification numbers. In both countries they assign these numbers at birth. Deterministic linkage is usually highly successful, and the major problem is the validation of multistage and probabilistic. This approach is usually dependent on the calculation linkage weights from sociodemographic variables. The success rates of probabilistic methods are above 80%. Maternally-linked perinatal data open new vistas for epidemiological research. Recurrence of poor perinatal outcomes is more appropriately studied using longitudinally-linked data sets. In addition, the emergence of risk factors and the recurrence of risk factors can be studied.

Bakewell JM, Stockbauer JW, Schramm WF. Factors associated with repetition of low birthweight: Missouri longitudinal study. Paediatr and Perinat Epidemiol 1997;11(1):119–29.

The tendency to repeat low birthweight (LBW <2,500 g) was studied in 182,285 linked first and second birth Missouri live births for 1978-90, of which 10,701 had first birth LBW. We examined the likelihood of LBW repetition by first birth birthweight, preterm delivery, and small-for-gestational-age (SGA) status by race, and the odd ratios (ORs) of repeat LBW for risk factors such as smoking, in comparison with ORs with second birth LBW among women with normal-weight first births. We found a strong tendency to repeat LBW (21%), especially following more extreme LBW first births. Adjusted ORs for repeat LBW were 10.1 for SGA term births. Significant ORs of LBW repetition were found for smoking (1.52 and 1.85 for smoking in second pregnancy only and both pregnancies, respectively), short interpregnancy interval (1.33), and advanced maternal age (1.17), but the ORs were generally lower than those for women with normal-weight first births. Low pre-pregnancy weight was a significant risk factor for LBW repetition.

Sable MR, Spencer JC, Stockbauer JW, Schramm WF, Howell V, Herman AA. Pregnancy wantedness and adverse pregnancy outcomes: Differences by race and Medicaid status. Fam Plann Perspect 1997;29:77–81.

The relationship between pregnancy wantedness and adverse pregnancy outcomes was studied using data from 2,828 mothers who participated in the Missouri Maternal and Infant Health Survey. The wantedness of a pregnancy was measured using traditional classifications of mistimed and unwanted, as well as additional measures gauging how the woman felt about the pregnancy while she was pregnant. Fifty-eight percent of the very low birth weight infants and 59% of the moderately low birth weight infants resulted from unintended pregnancies, as did 62% of the normal birth weight infants. Logistic regression showed that mothers of very low birth weight infants were significantly more likely than those who had a normal weight baby to report that they had felt unhappy about the pregnancy (odds ratio of 1.53). Very low birth weight was also associated with early denial of the pregnancy (1.54). Odds ratios associating these two unwantedness categories with low birth weight babies were higher among Medicaid recipients than among women not receiving Medicaid. Associations between very low birth weight and the denial variable were also significant among white women when very low birth weight outcomes were compared with normal outcomes, but there was no significant association among black women. There were no significant associations between low birth weight and the traditional unwantedness variables.

RELATED PUBLISHED ARTICLES (continued):

Center for Health Information Management and Epidemiology. Medical risk factors and pregnancy outcome. Missouri Monthly Vital Statistics 1997;31(3).

Center for Health Information Management and Epidemiology. Non-marital fertility in Missouri. Missouri Monthly Vital Statistics 1997;31(2).

Center for Health Information Management and Epidemiology. Smoking during pregnancy: Missouri Longitudinal study. Missouri Monthly Vital Statistics 1997;30(11).

Schramm WF, Stockbauer JW, Hoffman HJ. Exercise, employment, other daily activities and adverse pregnancy outcomes. Am J Epidemiol 1996;143:211–18.

The relations of exercise, employment, and other daily activities during pregnancy with pregnancy outcomes were examined using data from the Missouri Maternal and Infant Health Survey. Maternal surveys were available for the following singleton birth categories: 450 fetal deaths; 782 very low birth weight (VLBW, <1,500 g); 802 moderately low birth weight (MLBW, 1,500-2,499 g); and 794 normal birth weight (NBW, ≥2,500 g). All mothers were Missouri residents at the time of their December 1989 to March 1991 deliveries. It was found that VLBW mothers had exercised during pregnancy significantly less than NBW mothers. When compared with NBW mothers before pregnancy, VLBW mothers had been just as likely not to exercise as NBW mothers (odds ratio (OR) = 0.88, 95% confidence interval (CI) 0.69-1.12). During the first, second, and third trimesters, the odds ratios decreased to 0.70 (95% CI 0.53-0.92), 0.54 (95% CI 0.40-0.74), and 0.33 (95% CI 0.20-0.53), respectively. The VLBW mothers also were less likely to exercise during the third trimester than MLBW mothers (OR = 0.34, 95% CI 0.21-0.54) or mothers with fetal deaths (OR = 0.36, 95% CI 0.19-0.67). During the three months after pregnancy, none of the exercise odds ratios were statistically significant between groups. No significantly increased risks were found between employment during pregnancy or other daily activities and adverse pregnancy outcome. The study supports the recently relaxed guidelines of exercise during pregnancy.

Hanvas A, Wise PH, Yang RK, Wampler MS, Noguchi A, Maurer MM, Walentik CA, Schramm WF, Cole FS. The influence of the wider use of surfactant therapy on neonatal mortality among blacks and whites. N Engl J Med 1996;334:1635–40.

Background—Surfactant therapy reduces morbidity and mortality among premature infants with the respiratory distress syndrome (RDS). Fetal pulmonary surfactant matures more slowly in white than in black fetuses, and therefore RDS is more prevalent among whites than among blacks. We reasoned that the increased use of surfactant after its approval by the Food and Drug Administration (FDA) in 1990 might have reduced neonatal mortality more among whites than among blacks.

Methods—We merged vital-statistics information for all 1,563 infants with very low birth weights (500 to 1,500 g) born from 1987 through 1989 or in 1991 and 1992 to residents of St. Louis with clinical data from the four neonatal intensive care units in the St. Louis area; we then compared neonatal mortality during two periods, one before and one after the FDA's approval of surfactant or clinical use (1987 through 1989 and 1991 through 1992).

Results—The use of surfactant increased by a factor of 10 between 1987 through 1989 and 1991 through 1992. The neonatal mortality rate among all very low birth weight infants decreased 17 percent, from 220.3 deaths per 1,000 very low birth weight babies born alive (in 1987 through 1989) to 183.9 to 1,000 (in 1991 through 1992; P=0.07). This decrease was due to a 41 percent reduction in the mortality rate among white newborns with very low birth weights (from 261.5 per 1,000 to 155.5 per 1,000; P=0.003). In contrast, among black infants, the mortality rate for very low birth weight infants did not change significantly (195.6 per 1,000 and 196.8 per 1,000). The relative risk of death among black newborns with very low birth weights as compared with white newborns with similar weights was 0.7 from 1987 through 1989 and 1.3 from 1991 through 1992 (P=0.02). The differences in mortality were not explained by differences in access to surfactant therapy, by differences in mortality between black and white infants who received surfactant, or by differences in the use of antenatal corticosteriod therapy.

Conclusions—After surfactant therapy for RDS became generally available, neonatal mortality improved more for white than for black infants with very low birth weights.

State Center for Health Statistics. The impact of Medicaid expansion. Missouri Monthly Vital Statistics 1995;29(5).

State Center for Health Statistics. The baby your baby program in Missouri. Missouri Monthly Vital Statistics 1995;28(12).

Pierson VH, Schramm W, Stockbauer J, Land G, Hoffman H, Herman A. Prenatal care access and pregnancy outcomes in Missouri. Mo Med 1994;91:624–29.

Women's access to prenatal care and perception of barriers to obtaining care were acquired from data derived from the 1990 National Institute of Child Health and Development/Missouri Maternal and Infant Health Survey. Maternal surveys were available for 479 fetal deaths, 902 very low birth weight, 802 moderately low birth weight, and 919 normal birth weight infants. Very low birth weight mothers were less likely to receive prenatal care, perceived more barriers to obtaining prenatal care, and were more unhappy about their pregnancy than were the mothers of normal weight infants.

State Center for Health Statistics. Recent trends in fertility. Missouri Monthly Vital Statistics 1994;28(7).

State Center for Health Statistics. Characteristics of women having out-of-wedlock births and their outcomes. Missouri Monthly Vital Statistics 1994;28(5).

Live Births, Fetal Deaths (continued)

RELATED PUBLISHED ARTICLES (continued):

State Center for Health Statistics. Cesarean section births in Missouri. Missouri Monthly Vital Statistics 1993;27(5).

State Center for Health Statistics. Geographic variation in low birth weight rates. Missouri Monthly Vital Statistics 1993;27(4).

State Center for Health Statistics. Birth spacing and low birth weights. Missouri Monthly Vital Statistics 1993;27(3).

State Center for Health Statistics. Case management—1990 update. Missouri Monthly Vital Statistics 1992;26(10).

State Center for Health Statistics. Weighing costs and benefits of adequate prenatal care for 1988 Medicaid births. Missouri Monthly Vital Statistics 1992;26(9).

State Center for Health Statistics. Access to care: Medicaid status and county of delivery. Missouri Monthly Vital Statistics 1992;26(8).

State Center for Health Statistics. Recent trends in Medicaid and WIC births. Missouri Monthly Vital Statistics 1992;26(1).

State Center for Health Statistics. Missouri teen pregnancies. Missouri Monthly Vital Statistics 1991;26(6).

State Center for Health Statistics. Impact of birth defects on infant mortality and morbidity. Missouri Monthly Vital Statistics 1991;25(12).

State Center for Health Statistics. Case management program evaluation. Missouri Monthly Vital Statistics 1991;25(10).

State Center for Health Statistics. Demographics behavioral and medical characteristics by birth weight. Missouri Monthly Vital Statistics 1991;25(8).

State Center for Health Statistics. Changes in characteristics of women who smoke during pregnancy: The Missouri experience 1978–1988. Missouri Monthly Vital Statistics 1991;25(3).

State Center for Health Statistics. Trends in out-of-wedlock births. Missouri Monthly Vital Statistics 1991;25(1).

State Center for Health Statistics. Newborn crownheel length. Missouri Monthly Vital Statistics 1990;24(10).

State Center for Health Statistics. Weight gain in pregnancy. Missouri Monthly Vital Statistics 1990;24(9).

State Center for Health Statistics. Effects of Medicaid expansion in Missouri. Missouri Monthly Vital Statistics 1990;24(7).

State Center for Health Statistics. Neonatal and maternal transfers among Missouri resident births. Missouri Monthly Vital Statistics 1990;24(6).

State Center for Health Statistics. Revised Missouri birth certificate. Missouri Monthly Vital Statistics 1989;23(9).

State Center for Health Statistics. Low birth weight and perinatal death rates by age of mother. Missouri Monthly Vital Statistics 1989;23(5).

State Center for Health Statistics. Racial differences in perinatal mortality by obstetrical complication. Missouri Monthly Vital Statistics 1989;23(2).

Live Births, Fetal Deaths (continued)

FEE FOR DATA:

There is an assessed charge of $10 per certificate. The fee for data requiring computer programming will include a file access charge, $30 per hour research analyst time and $2.50 postage and handling. The file access charge for births is $21 per year and for the birth/infant death merged file is $5 per year. For further details on other charges, see the Fee Policy on pages 11–13.

CONTACT FOR DATA, REPORTS OR ADDITIONAL INFORMATION:

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Bureau of Health Data Analysis
Center for Health Information Management
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Missouri Department of Health
P.O. Box 570
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Maternally-Linked Births

A data set of maternally-linked births was created by organizing live birth and fetal death records from 1978–1990 into sibships based on maternal association. Maternally-linked records allow inclusion of reproductive history in the study of adverse reproductive outcomes, such as low birth weight and infant death. The data set includes 664,569 live birth and fetal death records, representing 282,130 sibships.

Live birth and fetal death records include the month and year of last live birth and last termination. For 1978–1990, an attempt was made to link records indicating a prior event (also occurring in 1978-1990) to that prior event. Linkage methodology was probabilistic, and based on key variables of maternal first name, maiden name and month and year of prior birth, with secondary variables, such as maternal race, state of birth, parity, education and age, adjusted for inter-pregnancy interval. An 87 percent linkage rate was achieved for linkages to a prior live birth, and a 33 percent rate was achieved for linkages to a prior fetal death. The primary reason for non-linkage to a prior live birth is believed to be migration to Missouri between births; a 93 percent linkage rate was achieved for records listing Missouri as the maternal state of birth. The low linkage rate for prior fetal deaths reflects an inability to distinguish month and year of last termination between fetal deaths of 20 plus weeks gestation (for which a fetal death certificate should be completed) and those of shorter gestation (for which no certificate would have been completed). After completion of linkage to the most recent prior event, individual linkages (e.g., first to second birth and second to third birth) were chained together and a sibship identifier assigned.

DATA ITEMS ON TAPE:

Data Items	Years Available
All Birth Certificate Items	1978–1990
Cause of Death (infant deaths)	1978–1990
Age at Death (infant deaths)	1978–1990

RELATED PUBLISHED ARTICLES:

Herman A, McCarthy B, Bakewell J, Ward R, Mueller B, Maconochie N, Read A, Zadka P, Skjaerven R. Data linkage methods used in maternally-linked birth and infant death surveillance data sets from the United States (Georgia, Missouri, Utah and Washington State), Israel, Norway, Scotland and Western Australia. Paediatr Perinat Epidemiol 1997;11(1): 5–22.

Schramm W. Smoking during pregnancy: Missouri longitudinal study. Paediatr Perinat Epidemiol 1997;11(1):73–83.

Bakewell J, Stockbauer J, Schramm W. Factors associated with repetition of low birth weight: Missouri longitudinal study. Paediatr Perinat Epidemiol 1997;11(1):119–29.

FEE FOR DATA:

The fee for data requiring computer programming will include a $85 file access charge, $30 per hour research analyst time and $2.50 postage and handling. State and local health departments, other Missouri state agencies and local government, media/media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

CONTACT FOR DATA OR ADDITIONAL INFORMATION:

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Center for Health Information Management and Epidemiology
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Pediatric Nutrition Surveillance

The Centers for Disease Control and Prevention (CDC) began working with states in 1972 to develop a system for continuously monitoring key indicators of nutritional status of low-income children in the United States who participate in publicly-funded health and nutrition programs. This system known as the Pediatric Nutrition Surveillance System (PedNSS) utilizes already available data collected from health, nutrition and food assistance programs for infants and children, such as growth measurements and hemoglobin concentrations.

Missouri PedNSS data sets include records of low income infants and children that participate in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) only. Thus, the data describe the nutritional status of the infants and children who participate in WIC only, not the entire population of infants and children in the state.

State health departments participating in PedNSS submit data monthly to CDC on computer tapes or disks. These data are analyzed at CDC semiannually and annually, and summaries are returned to the Department of Health for data analysis and use in program planning, management and evaluation of state and local maternal and child health programs and activities. Twelve tables are routinely generated by CDC. These tables are summarized by state, region, county and clinic-specific information. Table summaries of national data are also received.

The key indicators monitored by PedNSS are:

- **Demographic Variables**–are variables associated with poor birth outcome and risk for poor infant or child health and growth status. These include *race or ethnicity* and *age.*
- **Birth Weight**—*low birth weight* (<2500 grams or 5 lb. 8 oz.) occurs when an infant is born less than 37 weeks of age, when there is intrauterine growth retardation or as a result of both conditions.
- **Height-for-Age**—*low height-for-age, shortness or stunting* (<5th percentile height-for-age NCHS/CDC reference) reflects the long-term health and nutritional history of a child.
- **Weight-for-Height**—
  low weight-for-height or thinness (<5th percentile NCHS/CDC reference) is often associated with recent or chronic disease. A prevalence of low weight-for-height greater than five percent reflects serious health and nutrition problems.

  high weight-for height or overweight (>95th percentile NCHS/CDC reference) in the pediatric population is an important public health issue. One-third to one-half of those who are above the 95th percentile weight-for-height will become obese adults.
- **Anemia and Iron Status**—*low hemoglobin and/or hematocrit* is used as a crude indicator of anemia and poor iron status. Although the most common cause of anemia throughout the world is iron deficiency, it is important to note that not all anemia is due to iron deficiency.
- **Breastfeeding**—is recommended as the feeding of choice for all infants in the United States until they are 4–6 months of age unless there is some medical complication that requires another feeding option. The distribution of *breastfeeding duration* and of children that *ever breastfed* are reported.

An annual report is prepared by the Department of Health, generally within six months after receipt of the summary tables from CDC. The annual report summarizes the state data and compares it to the national data on demographic characteristics of the population, breastfeeding, and prevalence and trends for five nutritional indicators: low height-for-age, high weight-for-height, low weight-for-height, low birth weight and low hemoglobin.

Clinic/county specific graphic summaries of the demographic characteristics of the population and prevalence of the five nutritional indicators are also generated by the Department of Health for use by the local WIC agencies.

Pediatric Nutrition Surveillance (continued)

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
	Missouri Nutrition Surveillance System: Pediatric Nutrition Surveillance System This annual report summarizes the state data and compares it to the national data on demographic characteristics of the population, breastfeeding, and prevalence and trends of five nutritional indicators: low height-for-age, high weight-for-height, low weight-for-height, low birth weight, and low hemoglobin.	1996	No Charge for one copy (Limited Supply Available)

CONTACT FOR REPORTS OR ADDITIONAL INFORMATION:

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Perinatal Substance Abuse Prevalence

The effects of substance abuse during pregnancy include low birth weight, prematurity, stillbirth, mental retardation and other neurobehavioral problems. Risk-taking lifestyles, poor nutrition and lack of prenatal care may add to the poor outcomes. In order to address these problems, sections 191.725–745, RSMo were enacted in 1992 to provide assessment, education and referral for substance abuse among pregnant women in Missouri. The actual extent of both licit and illicit substance abuse among pregnant women in Missouri was unknown at the time.

Section 191.745, RSMo requires that the Department of Health conduct "periodic and scientifically appropriate prevalence tests on a statistically significant sample of women or infants at the time of delivery." The purpose of the studies is to estimate the prevalence of use of tobacco, alcohol and illicit drugs among pregnant women in Missouri, and to determine some patterns of use. The information obtained will permit the development of appropriate prevention, treatment, and intervention strategies, and provide a baseline to assess trends and the effectiveness of interventions.

The studies, which are anonymous to staff and patients, utilize a representative statewide sample of peripartum women. A portion of the routine urine specimen and a brief abstract of information from the chart are obtained for analysis. The abstracted information includes demographic data; obstetrical history; self-reported use of alcohol, tobacco and other drugs during pregnancy; prenatal care status; delivery outcome and birth weight; and prescription medications. The substances tested for include tobacco, alcohol and illicit drugs.

The first study was conducted in 1993 and the results published in *Missouri Medicine* in 1996. A second study was conducted in 1997, and the results are expected to be available in 1998. As recommended by an advisory committee, the study will be repeated every four years.

RELATED PUBLISHED ARTICLES:

Dempsey ME, Schlechte T, Stockbauer JW, Schramm WF, Cary PL. Prevalence and implications of perinatal substance use in Missouri. Mo Med 1996;93(6):292–99.

A statewide sample of peripartum women was secured utilizing a multi-stage probability proportional to size sampling design, with non-military hospitals doing 200 or more deliveries in 1991 serving as the primary sampling units. The substances tested for included tobacco (maternal urine sample-cotinine), alcohol (chart abstraction only), and several common illicit drugs (maternal urine sample and infant meconium sample). Using chart abstraction for alcohol and urine analysis for all other substances, the overall estimate of statewide prevalence of any substance use was 31.9%. Based solely on maternal urine analysis, the estimated overall prevalence of illegal drug use was 10.8%. Infant meconium analysis revealed an overall prevalence of illegal drug use of only 6.2%, and when combined with urine positives resulted in a prevalence of 13.0%. The efficacy of both types of assessment is discussed.

By far, tobacco was the drug of choice, with an estimated prevalence of 21.9% as detected from maternal urine. This was followed by alcohol use which had a prevalence of 7.9%. The highest prevalence for illegal drugs was noted for marijuana at 4%. Except for cocaine, prevalence of drug use varied little by race. The cocaine prevalence rate among black women was nearly 20 times higher than for white women. The prevalence of alcohol use increased with age, while tobacco and marijuana use peaked at ages 20–24 and cocaine use at ages 25–29. The highest prevalence estimates were observed for women with no prenatal care, with over one-third using alcohol, nearly one-half tobacco, one-in-four cocaine and one-in-ten marijuana. First trimester entry into care was associated with the lowest prevalence estimates for all drugs reviewed. The prevalence estimates for all four substances are significantly higher for women who delivered low birth-weight babies (less than 5 pounds, 8 ounces) than for women delivering heavier infants. These results implore the development of appropriate policies and interventions.

State Center for Health Statistics. Missouri perinatal drug prevalence study. Missouri Monthly Vital Statistics 1996;30(5).

CONTACT FOR ADDITIONAL INFORMATION:

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Pregnancy Nutrition Surveillance

Since 1979, the Centers for Disease Control and Prevention (CDC) has assisted states to monitor nutritional status during the course of pregnancy. The initial design of the Pregnancy Nutrition Surveillance System (PNSS) monitored nutrition-related problems, including pregravid weight status, low hematology values, smoking behavior and birth outcome, such as birth weight. In 1989, PNSS was enhanced by adding nutrition and behavioral risk factor information as part of the surveillance data. The emphasis of the enhanced PNSS is to better quantify preventable risk behaviors such as smoking and alcohol consumption and to examine the relationship of nutritional and behavioral risks during pregnancy to birth outcome.

The PNSS utilizes data collected from health, nutrition and food assistance programs for pregnant women. Missouri's PNSS data sets include records from low income women only, and do not represent all pregnant women in the state. In Missouri, the Special Supplemental Nutrition program for Women, Infants and Children (WIC) is the major source of data for PNSS. Work towards a full-scale implementation of the PNSS in Missouri began in 1991. By the end of 1993, all local health agencies in the state were sending the majority of the required data items for PNSS to CDC.

State and territorial health departments as well as Indian agencies participating in PNSS submit information quarterly to CDC on computer tapes or diskettes. These data are analyzed by CDC annually, and summaries are returned to the Department of Health for data analysis and use in program planning, management and the evaluation of maternal health programs and activities at the state and local levels. Twenty-three tables are routinely generated by CDC. These tables are summarized by state, region, county and clinic-specific information. Table summaries of national data are also received.

The key indicators monitored by PNSS are:

- **Demographic Variables**—The major demographic variables influencing pregnancy outcome *are ethnicity, maternal age, marital status and socioeconomic status*.

- **Health Indicators—**
  Prepregnancy Weight Status is determined by the body mass index (BMI). Reference criteria for normal, underweight and overweight are based on the Institute of Medicine, National Academy of Sciences report on Nutrition During Pregnancy.

  Weight Gain During Pregnancy—Current recommendations for prenatal weight gain are 25–35 pounds for women entering pregnancy with normal weight/height status. Adjustments are made for underweight or overweight women, as recommended by the National Institute of Medicine. Weight gain is classified as ideal, less than ideal and greater than ideal.

  Low Hemoglobin and/or Hematocrit are used as crude indicators of anemia and poor iron status. The hemoglobin and hematocrit cut-offs for childbearing-aged women have been developed by CDC. Prevalences are summarized for prenatal and postpartum women.

- **Prenatal Behaviors—**
  Smoking doubles the risk of low birth weight and is a contributing factor in 20–40 percent of low birth weight infants born in the United States. A woman who stops smoking when she first discovers that she is pregnant reduces her risk of poor pregnancy outcome.

  Alcohol consumption is associated with adverse outcomes during all stages of fetal development. Alcohol intake during the first trimester is associated with fetal malformation, the second with fetal loss, and the third with low birth weight.

  Medical Care—The quality, quantity and timing of prenatal care influence pregnancy outcome. The risk of low birth weight is reduced for women who initiate care during the first trimester of pregnancy.

  Entry into WIC—percentages are reported by stage of pregnancy and postpartum.

Pregnancy Nutrition Surveillance (continued)

- **Birth Outcome—**
  Birth Weight: low birth weight (<2500 grams of 5.5 pounds); normal birth weight (2500–3999 grams); high birth weight (4000–5999 grams).

  Gestational Age < 37 weeks

  Stillborn

- **Infant Feeding Practices**—include prevalence for children who were *ever breastfed*, and those receiving *breastmilk only*, *formula only* or *both breastmilk and formula*.

An annual report is prepared by the Department of Health, generally within six months after receipt of the summary tables from CDC. The annual report summarizes the state data and compares it to the national data on demographic characteristics of the population and prevalence of anemia, prenatal care, prepregnancy weight status, weight gain during pregnancy, smoking behaviors, drinking behaviors, birth outcomes specifically low birth weight and premature births, and infant feeding practices.

Clinic/county-specific graphic summaries of the demographic characteristics of the population and prevalence of health indicators, prenatal behaviors and birth outcomes are generated by the Department of Health for use by the local WIC agencies.

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Cost
	Missouri Nutrition Surveillance System: Pregnancy Nutrition Surveillance System This annual report summarizes the state data and compares it to the national data on demographic characteristics of the population and prevalence of anemia, prenatal care, prepregnancy weight status, weight gain during pregnancy, smoking behaviors, drinking behaviors, birth outcomes specifically low birth weight and premature births, and infant feeding practices.	1995	No Charge for one copy (Limited Supply Available)

CONTACT FOR REPORTS OR ADDITIONAL INFORMATION:

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Behavioral Risk Factor Surveillance

Quality data on the health status and current attitudes, beliefs and practices of Missouri residents are needed to strengthen planning, education, research and legislation aimed at promoting healthier lifestyles and reducing morbidity and mortality among Missouri citizens. The Behavioral Risk Factor Surveillance System (BRFSS) provides one of the best means of obtaining this data. The BRFSS, developed and supported by the Centers for Disease Control and Prevention (CDC) and collaborating states, is now operational in all 50 states. The Missouri Department of Health (DOH) has been collecting BRFSS data since 1986; since 1990, the Division of Chronic Disease Prevention and Health Promotion (CDPHP), Office of Surveillance, Research and Evaluation (OSRE) has been responsible for BRFSS data collection, analysis and dissemination. OSRE is currently in the fourth year (1 September 1997–31 August 1998) of a five-year funding cycle.

Behavioral changes can reduce an individual's risk for developing chronic diseases. Health problems for which risk can be reduced include but are not limited to cancer, heart disease and diabetes. Behaviors linked to these problems are referred to as behavioral risk factors; they include tobacco use, dietary habits, preventive screening services and physical activity level.

Behavioral risk factor data are collected through random-digit-dialed (RDD) monthly telephone interviews with adult (18 years of age and older) residents of the state, using standardized protocols and interviewing techniques. The BRFSS questionnaire contains three parts: core sections, optional standard CDC modules and state-specific questions. Core sections consist of the "fixed core"—questions that are included every year—and "rotating core"—questions that are asked every other year. States **must** include all fixed and rotating core questions in their annual BRFSS questionnaire. Optional standard CDC modules—sets of questions on specific topics, most of which are related to chronic disease prevention and control—may be included in the state's annual questionnaire. States have the option of choosing which (if any) optional standard CDC modules to include. State-specific questions can be developed by individual states to address local issues or topics not covered by CDC core sections or optional modules and included at the state's discretion. Researchers may request a computerized file of each annual BRFSS data set from 1987 to the present.

The responses to each question in the core questionnaire and standard modules are converted to simple prevalences accompanied by standard errors, 95% confidence intervals, and the z-statistic for difference. These data are published in the CDC Behavioral Surveillance Branch (BSB) annual report by gender, age, race, level of educational achievement and household income. Indices that measure the percentage of the population at risk due to certain behaviors (e.g., alcohol use, tobacco use, hypertension, obesity, physical inactivity, etc.) are also available. Copies of or excerpts from these annual reports (1990–1996) are available.

The BSB produces annual reports for 50 states, the District of Columbia, Puerto Rico and miscellaneous U.S. territories. The annual summary report, which includes all participating states/territories, is prepared for selected variables. Public use tapes of these data and reports are available from the BSB upon request. A request form, obtainable at the following address, is required.

Behavioral Surveillance Branch
Division of Adult and Community Health
NCCDPHP, Mailstop K-30
Centers for Disease Control and Prevention
Atlanta, Georgia 30341-3274
Ph: (770) 488-5565
FAX: (770) 488-5974
E-mail: SOB7@CCDOSA1.EM.CDC.GOV

POLICY FOR RELEASE OF INFORMATION:

The Office of Surveillance, Research and Evaluation seeks to provide timely access to BRFSS data to as diverse an array of public health professionals as possible while ensuring data quality. Individuals wishing to use or have access to Missouri BRFSS data sets must submit a request form to Jeannette Jackson-Thompson, M.S.P.H, Ph.D. The Protocol for Research using Missouri Vital Records access/data request form found on page 10 may be used for this purpose.

DATA ITEMS AVAILABLE:

(Each BRFSS data element (topic) is composed of a series of questions, most of which have a limited number of self-reported, categorical responses. Some questions included within a series may vary by year. Fixed core elements (C) are included in the BRFSS questionnaire every year; rotating core elements (RC), every other year; and optional (O) or state-added elements (S), at the state's discretion. Additionally, "emerging issue" questions may be added by CDC to a fixed or rotating core in any given year. An index by year of topics and the questions contained therein may be obtained from OSRE.)

Data Items	Date Type*
Alcohol Consumption	RC
Arthritis	O and S
Cardiovascular Disease	O
Cholesterol Awareness	RC
Cholesterol Control	S
Colorectal Cancer Screening	RC
Demographics	C
Diabetes	C and O
Dietary Fats	O
Environmental Tobacco Smoke	S
Exercise	RC
Flood of 1993	S
Food Handling and Preparation	O
Fruits and Vegetables	RC
Health Care Access	C
Health Care Coverage	O
Health Care Utilization	O
Health Status	C

Data Items	Data Type*
HIV/AIDS	C
Hypertension Awareness	RC
Hypertension Control	S
Immunization	RC
Injury Control	RC
Oral Health	O
Preventative Counseling Services	O
Prostate Cancer Screening	S
Quality of Life	O
Skin Cancer	O
Smokeless Tobacco Use	O
Social Context	O
Social Norms on Tobacco	S
Tobacco Use	C
Tobacco Use Prevention	S
Weight Control	RC
Women's Health	C

*C=Fixed Core, RC=Rotating Core, O=Optional Standard CDC, S=State Added

PUBLICATIONS AVAILABLE:

Publication Number	Report Title	Date	Cost
	Behavioral Risk Factor Surveillance System State Prevalence Report Annual report of BRFSS prevalences by gender, age, race, level of educational achievement and household income in Missouri.	Annually 1990–present	$75.00
	Health Risks in America: Gaining Insight from the Behavioral Risk Factor Surveillance System Introductory pamphlet to the Behavioral Risk Factor Surveillance System	1997	No Charge

RELATED PUBLISHED ARTICLES:

Farnoush A, Simoes EJ, Newschaffer CJ, Tao X, Mack NE, Brownson RC. Predictors of mammography utilization in Missouri, 1993–1994. J Public Health Manage Pract in press.

Objective: The purpose of this study was to determine the patterns and predictors of mammography utilization in several complementary data sets.

Methods: This study examined historical mammography utilization data on 915 women aged 40 and over from a combined sample of 1994 Missouri Behavioral Risk Factor Surveillance System and Special Breast and Cervical Cancer Control Project Evaluation Survey, 'population surveys,' as well as similar data from 6784 new participants in Missouri's Breast and Cervical Cancer Control Project, 'medically underserved survey' (MUS), during 1993–1994. Odds of ever having a mammogram were generated across levels of sociodemographic factors, barriers to health care, screening practices, and other health-related behaviors among women aged 40 and over.

Results: Women aged 50–65 and 65+ were significantly more likely to have ever had a mammogram than women aged 40-49 in the MUS. Being African-American was associated with 130% increase in ever having a mammogram in the population survey. Among women aged 40 and over, having some college education was associated with 60% nonsignificant and 33% significant increased likelihood of ever having a mammogram in the population survey and the MUS, respectively. Health insurance coverage was also shown to be significantly associated with this outcome variable with OR $(95\%CI)_{\text{population surveys}}$: 5.4 (2.8-20.5); OR $(95\%CI)_{\text{MUS}}$: 1.33 (1.13-1.57. For both study populations, mammography use was positively related to Pap screening and inversely related to current cigarette smoking.

RELATED PUBLISHED ARTICLES (continued):

Education, age, health care, Pap testing, and smoking were identified as important predictors of compliance with recommended schedule of yearly mammography among women aged 50 and over.

Conclusions: Despite differences between the two study populations, similar predictive findings were obtained from the separate analyses. Underutilization of mammography was apparent among women of low educational attainment and those without any kind of health coverage. Public health efforts must continue to target women of low socioeconomic status in promoting mammography screening programs.

Hagdrup NA, Simoes EJ, Brownson RC. Access to health care: Traditional and preventative measures and associations with chronic disease risk factors. J Community Health in press.

Objective: Physician counseling of patients on health behaviors is an essential component of chronic disease prevention. However, this assumes that patients have ready access to health care providers. Predictors of health care coverage were examined using health plan availability and cost barriers (traditional coverage) and levels of preventative coverage.

Methods: 2574 adult respondents to the 1991–92 Missouri Behavioral Risk Factor Surveillance System Surveys were studied. The associations of traditional coverage and preventative coverage with sociodemographic variables, health related behavior and preventative screening practices using adjusted prevalence odds ratios were examined.

Results: Almost 60% of Missouri adults surveyed reported incomplete coverage of preventative services. For both measures lack of coverage was associated with sociodemographics, health behaviors and preventative screening practices. Smoking and higher education were significantly associated with traditional coverage, whereas urban residency and cholesterol screening were associated with preventative coverage.

Conclusion: Inclusion of preventative care in measures of health coverage may alter previously reported association with sociodemographic and health related factors. Every patient encounter should be utilized to offer preventative health advice. In addition, continued efforts are required to increase preventative coverage.

Hagdrup NA, Simoes EJ, Brownson RC. Selected chronic disease risk factors in Missouri: Ten year trends and predictions for year 2000. Am J Prev Med in press.

Background: A study was undertaken to determine the prevalence rates of three chronic disease factors among adult Missourians from 1986–1995, to predict rates and to compare them with national and Missouri's goals for the year 2000.

Methods: Using data from Missouri Behavioral Risk Factor Surveillance System Surveys (BRFSS) 1986–1995, prevalence rates of smoking, physical inactivity and obesity were calculated across age, sex, race and educational levels. Linear regression was used to predict rates for year 2000, for the adults of Missouri as a whole and for particular sub-groups.

Results: There was a 0.9% annual decrease in smoking prevalence and a 4.6% annual increase in obesity over the 10 years, controlling for age and sex. The trend in rates of physical inactivity was nonsignificant. Continuation of these rates will give smoking rates of 23.6%, obesity rates of 35.5% and sedentary rates of 36.3% by the years 2000. Those with less than a high school education had higher rates for each of the risk factors.

Conclusions: This rate of decrease in rates of cigarette smoking is not sufficient to enable the year 2000 goal to be reached until year 2040, and the rates of obesity and sedentary lifestyle are increasing. The BRFSS, which has now been implemented in all 50 states and the District of Columbia, is a useful tool for monitoring progress towards health behavior targets.

Hagdrup NA, Simoes EJ, Brownson RC. Fruit and vegetable consumption in Missouri: Knowledge, barriers and benefits. J Behav Sci in press.

Using constructs from the Health Belief Model, we examined psycho-behavioral variables associated with daily F&V intake. Only 25.9% of adults (n=1,374) from the 1992–1993 Missouri Nutrition telephone survey reported eating at least 5 daily servings of F&V. Perceived barriers were most strongly associated with a low F&V intake, particularly time and effort for food preparation, and dining out. Two thirds of respondents found the recommendations on healthy eating confusing. F&V intake among Missouri adults remains below the Healthy People 2000 objectives. Efforts must be made to clarify recommendations, improve availability of healthy dining out options, and easily prepared healthy foods.

Brownson RC, Schmid TL, King AC, Eyler AA, Pratt M, Murayi T, Mayer JP, Brown DR. Support for policy interventions to increase physical activity in rural Missouri. Am J Health Promot 1997;12: in press.

Over the past few decades, the health benefits of physical activity have been well documented. Physical inactivity is increasingly recognized as a significant risk factor for coronary heart disease and a variety of other chronic diseases. Despite its beneficial effects, most U.S. adults do not participate in regular physical activity. Environmental and policy interventions show promise for increasing Americans' physical activity levels. Despite increasing awareness of the importance of environmental and policy changes in influencing physical activity, not much data exist on factors that may predict public acceptance and support of policy-related changes. Such information is important for community-based projects because it can provide a basis for developing policy interventions and for tailoring policy approaches to the characteristics of the populations at risk. This article summarizes relevant data and offers recommendations.

Brownson RC, Davis JR, Wilkerson JC, Jackson-Thompson J. Predictors of individual action to reduce exposure to environmental tobacco smoke. Tobacco Control 1994;3:216–21.

Objective: To determine the extent to which persons exposed to environmental tobacco smoke (ETS) take action to reduce exposure.

Design: Cross-sectional telephone survey.

Setting: Missouri, USA, 1991-92.

Participants: Population-based sample of Missouri residents age >/=18 years (n=3024).

RELATED PUBLISHED ARTICLES (continued):

Main outcome measures: A special series of questions was added to ascertain beliefs about ETS and actions taken to reduce individual exposure to ETS. The three primary variables of interest were (a) asking someone not to smoke in one's presence, (b) asking to be seated in a nonsmoking section of a restaurant, and (c) asking about reduction of workplace smoking.

Results: Overall among nonsmokers, 34.1% of respondents had asked someone not to smoke in their presence, 77.8% had asked to be seated in a nonsmoking section of a restaurant, and 26.9% had discussed reduction of workplace smoking. The strongest sociodemographic predictors of action to reduce ETS exposure included younger age, increasing education, and metropolitan or city residence. Actions to reduce ETS exposure also were higher among: those aware of the health consequences of ETS exposure, persons who were annoyed by ETS exposure, and respondents who favored restrictions on smoking in public places.

Conclusions: Certain population subgroups are more likely to advocate protection from the health hazards of ETS exposure. Use of such data in policy-oriented tobacco control projects may increase the likelihood of their success.

Brownson RC, Jackson-Thompson J, Wilkerson JC, Kiani F. Reliability of information on chronic disease risk factors collected in the Missouri behavioral risk factor surveillance system. Epidemiology 1994;5:545–49.

The Behavioral Risk Factor Surveillance System (BRFSS) is widely used by state health agencies to measure the prevalence of chronic disease risk factors. We completed a test-retest study to assess the reliability of the Missouri Behavioral Risk Factor Surveillance System. We conducted telephone reinterviews for 222 respondents of completed Behavioral Risk Factor Surveillance System interviews from March and April 1993. The second interview was completed between 6 and 30 days after the first interview. Agreement was high for sociodemographic variables (kappa values from 0.85 to 1.00). Reliability of information on chronic conditions and risk factors was also high, with kappa values form 0.82 for hypertension to 1.00 for current smoking status. Regarding cancer screening practices, reliability was lower for knowledge of the prostate-specific antigen test (k= 0.21) than for women's cancer screening practices (that is, the mammogram and Papanicolaou smear). Questions on attitudes toward environmental tobacco smoke showed lower reliability than did questions on individual actions to reduce exposure to environmental tobacco smoke.

Friedman C, Peterson DE, Brownson RC. Physician advice to reduce chronic disease risk factors. Am J Prev Med 1994;10:367–71.

The U.S. Preventative Services Task Force recommends that physicians advise their patients regarding smoking cessation, weight loss, and physical inactivity. Few studies, however, have assessed the extent to which persons with these risk factors receive advice from their physicians. Using data from the 1990–1991 Missouri Behavioral Risk Factor Surveillance System (BRFSS), a random digit-dialed telephone survey of adults, we identified Missouri residents with one or more of these modifiable risk factors. We examined whether these persons reported being advised by their physicians to modify their behavior(s) within the past year. Of the 2,971 respondents, 764 (26%) smoked, 1,720 (59%) were sedentary, and 686 (23%) were overweight. Five hundred and thirty-five smokers reported having a routine checkup within the past year, but only 224 (42%) reported being advised by their physicians to stop smoking. Of the 1,246 sedentary persons who had a routine checkup within the past year, 192 (15%) reported being told by their physicians to exercise more. Of the 521 overweight respondents who had a routine checkup within the past year, 225 (43%) reported being advised to lose weight. Physician advice for these risk factors was less frequently reported among men, blacks, younger persons, and persons from rural areas. Although most Missouri residents with these modifiable risk factors reported seeing their physicians within the past year, less than half reported that they received advice from their physicians to alter their risk behavior(s). Further efforts are necessary to increase the effectiveness of physician advise for at-risk patients about quitting smoking, losing weight, and increasing physical activity.

Pruitt JL, Mack N, Murayi T. Patterns of sedentary lifestyle in Missouri. Mo Med 1994;91:675–79.

Sedentary lifestyle is a major modifiable risk factor for chronic disease in Missouri. Survey data was examined for the prevalence of sedentary lifestyle in Missouri. Sedentary lifestyle was higher among blacks, older adults, persons with lower levels of education or income, and obese persons. Based on the current trend, Missouri is unlikely to achieve the year 2000 objective of </=50% prevalence of sedentary lifestyle.

Brownson RC, Wilkerson JC, Jackson-Thompson J, Davis JR, Sharp DJ, Northup KM. Trends and projections in selected chronic disease risk factors in Missouri 1986–2000. Mo Med 1993;90:17–20.

During this century, there has been an immense shift in the causes of death and disability. In 1900, the major causes of death were infectious diseases such as pneumonia, tuberculosis, and diarrhea. In contrast, in 1991, 71.5% of all deaths in Missouri were caused by four major chronic diseases: cardiovascular disease (i.e., heart disease and stroke), cancer, chronic lung disease, and diabetes. Through advances in medical and epidemiological research, we now know that much of the death and disability due to chronic diseases is preventable. In this article, we report on trends over time for three chronic disease risk factors: cigarette smoking, physical inactivity, an lack of cholesterol screening. We used the Behavioral Risk Factor Surveillance System (BRFSS) to examine these three risk factors which are among a group of factors targeted as priorities for the year 2000 at both state and national levels.

Mayer JP, Smith CA, Houston C, Smith E, Wilkerson JC. Consumption of fruits and vegetables in Missouri. Mo Med 1993;90:653–55.

High consumption of fruits and vegetables has been linked with a reduced risk of several important chronic diseases. The authors utilized telephone survey techniques to asses the level of fruit and vegetable consumption among adult Missouri residents. Only 28% of respondents reported consumption of five servings of fruits and vegetables per day. Older females had the highest rate of consuming five servings per day, while young males had the lowest rate. These findings, in conjunction with national data, show the need for increasing emphasis on the "5 a Day" campaign.

Northup KM, Brownson RC, Hagan RA, Wilkerson JC, Nelson GS. Utilization of mammography by Missouri women. Mo Med 1993;90:173–76.

It is estimated that one of every nine American women will develop breast cancer by age 85. Breast cancer accounted for 995 deaths in Missouri in 1991 and is second only to lung cancer as the leading cause of cancer deaths among women. The five year survival rate for localized breast cancer has risen from 78% in the 1940s to 93% today. If breast cancer is in situ at the time of diagnosis, the survival rate approaches 100%. Despite the clear survival advantages associated with early diagnosis and treatment, many women do not adhere to established guidelines for breast cancer screening. In this article, we report on mammography usage by Missouri women. The Behavioral Risk Factor Surveillance System (BRFSS) was used to examine reported behaviors by age group and income level.

RELATED PUBLISHED ARTICLES (continued):

Sharp DJ, Brownson RC, Sosin DM, Davis JR, Wilkerson JC, Jackson-Thompson J, Cooperstock L. Exposure to environmental tobacco smoke among Missouri children. Mo Med 1993;90:701–04.

Childhood exposure to environmental tobacco smoke (ETS) increases the risk of lower respiratory infections (e.g., bronchitis and pneumonia), exacerbates childhood asthma, and increases the prevalence of fluid in the middle ear. Using self-reported telephone survey data, we examined the attitudes and practices of Missouri residents related to ETS exposure of children. Ninety-five percent of all respondents believed the ETS exposure is harmful to children and the percentage was similar for households with children (96%) and without children (94%). ETS was present in 42% of households and the percentage was similar for households with children (41%) and without children (44%). Childhood exposure to ETS remains a problem in Missouri, despite widespread awareness of the hazards. More active intervention is needed to reduce ETS exposure in the home.

Sharp DJ, Brownson RC, Wilkerson JC, Jackson-Thompson J, Davis JR, Smith CA. Patterns of obesity in Missouri. Mo Med 1993;90:119–22.

Obesity is a major preventable health problem in Missouri and in the nation. Using survey data, we examined the prevalence of obesity in population subgroups and the overall trend. Prevalence of obesity was higher among blacks, middle-aged persons, and persons with less education or lower family income. Without additional attention, Missouri is unlikely to achieve the year 2000 objective of </= 20% prevalence of obesity.

Sprick AN, Akinbola PO. Diabetes and aging. Missouri Epidemiologist 1993;15 (1):2-3.

Diabetes is a leading cause of death and disability in Missouri. The Centers for Disease Control and Prevention (CDC) estimates that more than 300,000 Missourians have diabetes, although only about half are diagnosed. Diabetes was the seventh leading cause of death in Missouri in 1991, being reported as underlying cause for 1,106 resident deaths and as a contributing cause for an additional 2,600 deaths. CDC estimates that more than 62,000 hospitalizations in Missouri each year are due to diabetes, and that the financial cost of the diabetes problem in the state is about $450 million in direct (medical care) and indirect (lost productivity) costs.

Sprick AN, Akinbola PO, Hagen RA, Brownson RC. Diabetes in Missouri: Prevalence and high-risk populations. Mo Med 1993;90:69–71.

Diabetes was reported as an underlying or contributory cause of 3,706 deaths among Missouri residents in 1991, and the estimated direct and indirect costs of the disease in the state exceeded $450 million. Behavioral Risk Factor Surveillance System data indicate that, although diabetes is prevalent throughout the state's population, it is more prevalent among females, elderly persons, minority races, and persons with low educational and income levels. Individual practitioners should emphasize the reduction of health risk factors among their diabetic patients. Through regular monitoring of risks for diabetic complications and early intervention, a significant number of diabetic complications can be prevented or delayed.

Weaver AY, Brownson RC, Wilkerson JC, Akinbola PO, Jackson-Thompson J. Racial differences in the prevalence of cardiovascular risk factors among persons with diabetes. Mo Med 1993;90:751–54.

Persons with diabetes are at greater risk of numerous health complications including coronary heart disease and stroke. We used telephone survey data to assess racial variations in the level of cardiovascular risk factors among Missouri diabetics. The four risk factors included physical inactivity, obesity, hypertension, and cigarette smoking. Each risk factor except smoking was more common among persons with diabetes than among non-diabetics. In addition, these risk factors were more common among Blacks than among Whites. Our results suggest the need for expanded efforts at controlling diabetic complications among persons at high-risk.

Brownson RC, Jackson-Thompson J, Wilkerson JC, Davis JR, Owens NW, Fisher Jr EB. Demographic and socioeconomic differences in beliefs about the health effects of smoking. Am J Public Health 1992;82:99–103.

To assess sociodemographic differences in beliefs about the health effects of cigarette smoking and passive smoke exposure, we recently surveyed 2092 adults in St. Louis and Kansas City, Mo. The percentages of respondents who knew that smoking causes lung cancer, emphysema, and heart disease were 76.7, 74.1, and 67.2, respectively. After multivariate adjustment, knowledge about smoking's health effects was generally lower among women, older respondents, those of lower education level, and current smokers. Blacks were generally less likely to appreciate the health effects of active smoking, but were more likely to acknowledge the health effects of passive smoking.

Arfken CL, Fisher Jr EB, Heins J, Brownson RC, Smith CA, Wilkerson JC, Jackson-Thompson J. Increased cholesterol awareness in urban and rural areas—Missouri, 1988–1991. MMWR 1992;89:42–45.

Elevated serum cholesterol is a risk factor for coronary heart disease (CHD). From 1983 through 1990, the percentage of persons who had their cholesterol measured—a first step in reducing risk for CHD from serum cholesterol—increased nationwide. Changes in patterns had not been monitored specifically in rural areas, where access to medical care and other socioeconomic barriers may hinder receipt and use of cholesterol screening. To monitor trends in cholesterol awareness and other risk factors for cardiovascular disease among persons who live in rural and urban settings in Missouri, Washington University and the Missouri Department of Health (MDH) analyzed 1988-1991 Behavioral Risk Factor Surveillance System (BRFSS) data for Missouri.

Brownson RC, Smith CA, Horton J, Bagby JR. Racial differences in cardiovascular disease mortality and risk factors. Mo Med 1992;89:42–45.

Cardiovascular disease (CVD), which is comprised mainly of coronary heart disease and cerebrovascular disease (stroke), is the major cause of death, illness, disability, and medical costs in the United States and Missouri. An earlier Missouri Medicine article discussed the overall impact of CVD in Missouri. In this paper, we compare CVD mortality rates and common CVD risk factors between blacks and whites in Missouri. Examination of the racial distributions of various CVD risk factors provides the scientific basis for developing and targeting control strategies for high-risk populations.

RELATED PUBLISHED ARTICLES (continued):

Jackson-Thompson J, Hagan R, Wilkerson J, Davis JR, Brownson RC, Fisher EB. From basic BRFSS to special surveys: The collection, analysis and use of state, area and local data. Proceedings of the 1991 Public Health Conference on Records and Statistics 1991;DHHS Publication No.(PHS)92-1214:337–42.

Quality data on the health status and current attitudes, beliefs and practices of Missouri residents are needed to strengthen planning, education, research and legislation aimed at promoting healthier lifestyles and reducing morbidity and mortality among Missouri citizens. The Behavioral Risk Factor Surveillance System (BRFSS) provides one of the best means of obtaining current data on lifestyle risk factors. One dilemma that MDOH has faced concerns obtaining sufficient data on subpopulations within a defined geographic area to assess objectives targeting special populations. Traditional solutions included increasing the survey sample size and/or aggregating data from several years. To assess objectives targeting special populations in specific locales, such solutions are not always feasible. A special survey based on BRFSS methodology may be a better alternative.

Pratt M, Brownson RC. The prevalence of nonpharmacologic measures of blood pressure control in Missouri. Mo Med 1990;87:818–21.

More than 60 million Americans have high blood pressure, putting them at increased risk for stroke, coronary heart disease, congestive heart failure, peripheral vascular disease, and renal disease. As many as 900,000 Missourians may have high blood pressure. Nonpharmacologic treatment of high blood pressure is a promising alternative or adjunct for many persons with hypertension. We performed analyses to determine whether persons in Missouri with high blood pressure are using these behavioral strategies for controlling blood pressure.

FEE FOR DATA:

The Behavioral Surveillance Branch Annual Report costs approximately $75.00. Portions of the report can be provided for a per page fee, with 10 or fewer pages provided at no cost. A computerized file of each annual BRFSS data set will be provided as an e-mail attachment at no charge; there will be a charge to provide disk copies.

CONTACT FOR DATA, REPORTS OR ADDITIONAL INFORMATION:

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Division of Chronic Disease Prevention and Health Promotion
Missouri Department of Health
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Dissolutions of Marriage

Vital statistics data have long been Missouri's primary source of health information. Since 1949, the Department of Health has been the official state registrar for dissolution of marriage records. This long history of collection and recording makes vital statistics the most complete and probably the most accurate of all the sources for Missouri health data. In recent years, the Department of Health and the Missouri Center for Health Statistics (MCHS) have worked to improve the accuracy of vital statistics data and to automate processing of vital records at the original source.

Dissolution of marriage data document some of the social characteristics of a population.

New coding instructions for dissolutions of marriage keypunching and coding were developed for 1975 data to conform to those of the National Center for Health Statistics. Funding from the National Center for Health Statistics for marriage dissolution data began in 1976.

Missouri dissolution of marriage certificates were revised in 1978 to comply with changes in the national standard certificate. In 1989, Missouri again revised the dissolution of marriage certificate to comply with the new United States standard certificate. Several new items were added and some deleted or changed. A copy of the current Certificate of Dissolution of Marriage (MO 580-0716) form can be found on page A-81 of the Appendix.

The Center for Health Information Management and Epidemiology (CHIME) officially closes the vital statistics data file on April 15 of each year, and data tapes usually are available for analysis by June. From the vital statistics data, CHIME prepares an annual report of the vital statistics for Missouri, which normally is available for distribution in October. CHIME also publishes Missouri Monthly Vital Statistics, a monthly bulletin-type report that provides provisional vital statistics data to the public and users of such data.

POLICY FOR RELEASE OF INFORMATION:

For information on the release of dissolution of marriage data, see the Policy and Procedures for Release of Vital Records Information found on pages 7–8.

DISSOLUTION OF MARRIAGE ITEMS ON TAPE:

(Source Document: Certificate of Dissolution of Marriage)

Data Items	Years Available
Certificate No.	1969–present
County of Record	1969–present
Husband and Wife	
Name	1969–present
Residence	
State	1975–present
County	1975–present
Region	1978–present
State of Birth	1975–present
Date of Birth	
Month	1975–present
Year	1969–present
Age	1978–present
Race	1969–present
Number of this Marriage	1969–present
Number of Previous Marriages Ended by Death and Dissolution	1975–present
Last Marriage Ended by Death or Dissolution	1989–present
Date Last Marriage Ended (MMYY)	1989–present
Education	1975–present
State of Marriage	1975–present

Data Items	Years Available
Social Security Number	1997–present
County of Marriage	1975–present
Date of Marriage	
Day	1978–present
Month	1975–present
Year	1969–present
Date of Separation (MMYY)	1969–present
Day	1978–present
Total No. of Children of this Marriage	1975–present
Children under 18 in Family	1969–present
Disposition of Children	1969–present
Physical Custody was awarded to:	1989–present
Petitioner	1969–present
To Whom Divorce Granted	1969–1973
Was Case Contested	1969–1977
Type of Alimony or Support	1969–present
Child Support Awarded to	1989–present
Type of Decree	1974–present
Reason for Decree	1969–1977
Date of Decree (MMDDYY)	1969–present
Region of Decree	1978–present

Dissolutions of Marriage (continued)

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
	Missouri Monthly Vital Statistics This monthly report provides provisional data on births, deaths, marriages and dissolutions of marriage. Each issue features a topic of interest on the "Focus" page.	Monthly	No Charge
	Missouri Vital Statistics (Annual Report) Published annually, this publication reports the official vital statistics for Missouri. Data from the report are available from 1911 to date, although full copies are only available from 1968. Designed as a reference document, the publication features 43 tables on births, deaths, marriages, dissolutions of marriage and induced abortions. The report format was revised in 1979 and 1989.	1968–present	No Charge

RELATED PUBLISHED ARTICLES:

State Center for Health Statistics. Disposition of children affected by divorce. Missouri Monthly Vital Statistics 1994;28(8).

State Center for Health Statistics. Divorce rate drops. Missouri Monthly Vital Statistics 1985;18(12).

FEE FOR DATA:

There is an assessed charge of $10 per certificate. The fee for data requiring computer programming will include a $11 file access charge, $30 per hour research analyst time and $2.50 postage and handling. For further details on other charges, see the Fee Policy on pages 11–13.

CONTACT FOR DATA, REPORTS OR ADDITIONAL INFORMATION:

Suli Jia
Bureau of Health Data Analysis
Center for Health Information Management
and Epidemiology
Missouri Department of Health
P.O. Box 570
Jefferson City, MO 65102-0570

Ph: (573) 751-6278
FAX: (573) 526-4102

Geographic Identification

The Geocoding Data System operated by the Center for Health Information Management and Epidemiology (CHIME) is a system of geographic identification codes which cross-reference city, ZIP code, and county or sub-county areas.

Census tracts are currently cross-referenced for the St. Louis metropolitan area. The University of Missouri–St. Louis (UMSL) produces a computer tape which CHIME uses to print the *St. Louis Metro ZIP code and Census Tract Guide*. This listing of street address ranges (developed from the dual independent map encoding file of Bureau of the Census) indicates the proper ZIP code, census tract, county and city code for each address in the area. In exchange for this information, UMSL receives birth and death tapes from CHIME to update their files each year.

Files are updated periodically to keep references current and edits are made on the data system to check for correct coding of information. The most recent published update of this file is the *Missouri Geocode List 1997*, which provides city name, city code, county name, county code and ZIP code. It is divided into three sections, each in a different order (city name, ZIP code and county name), which makes it useful to the various agencies who receive it.

CHIME purchases files from Geographic Data Technology which contain ZIP code and county boundary coordinates, as well as additional information on ZIP codes throughout the state. These files are used in conjunction with the ATLAS GIS mapping package from Environmental Systems Research Institute, Inc. to draw maps for special studies conducted by the Missouri Department of Health.

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
7.5	**Missouri Geocode List 1997** This reference document is used for coding county, city and ZIP codes. It provides the city name, city code, county name, county code and post office ZIP code. The list is printed in city order, ZIP code order and county order.	September 1997	No Charge

FEE FOR DATA:

When geographic identification data are used to draw maps for special studies (i.e., Certificate of Need) there is a charge of $30 per hour research analyst time plus $2.50 postage and handing. State and local health departments, other Missouri state agencies and local government, media/media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

CONTACT FOR DATA, REPORTS OR ADDITIONAL INFORMATION:

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Marriages

Vital statistics data have long been Missouri's primary source of health information. Since 1949, the Department of Health has been the official state registrar for marriage records. This long history of collection and recording makes vital statistics the most complete and probably the most accurate of all the sources for Missouri health data. In recent years, the Department of Health and the Missouri Center for Health Statistics (MCHS) have worked to improve the accuracy of vital statistics data and to automate processing of vital records at the original source.

Marriage data document some of the social characteristics of a population.

New coding instructions for marriage keypunching and coding were developed for 1975 data to conform to those of the National Center for Health Statistics. Funding from the National Center for Health Statistics for marriage data began in 1976.

In 1989, Missouri revised the marriage certificate to comply with the new United States standard certificate. Several new items were added and some deleted or changed. A copy of the current Application/Report of Marriage (MO 580-0717) form can be found on page A-82 of the Appendix.

The Center for Health Information Management and Epidemiology (CHIME) officially closes the vital statistics data file on April 15 of each year, and data tapes usually are available for analysis by June. From the vital statistics data, CHIME prepares an annual report of the vital statistics for Missouri, which normally is available for distribution in October. CHIME also publishes Missouri Monthly Vital Statistics, a monthly bulletin-type report that provides provisional vital statistics data to the public and users of such data.

POLICY FOR RELEASE OF INFORMATION:

For information on the release of marriage data, see the Policy and Procedures for Release of Vital Records Information found on pages 7–8.

MARRIAGE ITEMS ON TAPE:

(Source Document: Monthly listing of recorded marriages from county clerks)

Data Items	Years Available
Certificate No.	1969–present
Recorded Area:	
Region	1978–present
County	1969–present
Bride and Groom	
Name	1969–present
Residence	1969–present
Region	1978–present
State	1969–present
County	1969–present
City	1969–1974
Age	1978–present
Race	1969–present
Date of Birth:	
Day	1978–present
Month	1975–present
Year	1969–present
State of Birth	1975–present
Education	1975–present
Previous Marital Status	1969–present
Number of this Marriage	1969–present
Date Last Marriage	
Ended (MMYY)	1975–present
Ended (DDMMYY)	1978–present
Social Security Number	1997–present
Type of Ceremony	1969–present
Date of Marriage (MMDDYY)	1969–present
County of Marriage	1969–present

Marriages (continued)

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
	Missouri Monthly Vital Statistics This monthly report provides provisional data on births, deaths, marriages and dissolutions of marriage. Each issue features a topic of interest on the "Focus" page.	Monthly	No Charge
	Missouri Vital Statistics (Annual Report) Published annually, this publication reports the official vital statistics for Missouri. Data from the report are available from 1911 to date, although full copies are only available from 1968. Designed as a reference document, the publication features 43 tables on births, deaths, marriages, dissolutions of marriage and induced abortions. The report format was revised in 1979 and 1989.	1968–present	No Charge

RELATED PUBLISHED ARTICLES:

State Center for Health Statistics. Marriage trends in Missouri 1980–1991. Missouri Monthly Vital Statistics 1992;26(5).

State Center for Health Statistics. Missouri marriages decreasing. Missouri Monthly Vital Statistics 1987;21(3).

FEE FOR DATA:

There is an assessed charge of $10 per certificate. The fee for data requiring computer programming will include a $21 file access charge, $30 per hour research analyst time and $2.50 postage and handling. For further details on other charges, see the Fee Policy on pages 11–13.

CONTACT FOR DATA, REPORTS OR ADDITIONAL INFORMATION:

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Population Estimates and Projections

Population data are required in nearly every area of planning and analysis by private and public agencies. Such data are essential for calculating birth and death rates, physicians-to-population ratios, nursing home beds-to-population ratios, hospital discharge rates, life tables, etc.

The United States Bureau of the Census provides detailed population data for a wide variety of variables every ten years, 1990 being the most recent complete year. However, the population components can change from year to year, and estimates are required for postcensal and intercensal years. The Bureau of the Census, in cooperation with the Missouri Division of Budget and Planning, produces total population estimates by county for postcensal years, as well as some population estimates during postcensal years for broad age groups for the state.

The Missouri Center for Health Statistics has used the estimates produced by the Bureau of the Census as control totals to produce population estimates by county, gender and ten-year age groups. The center's estimates are updated each year following the publication by the Bureau of the Census of the revised population estimates by county.

Within certain constraints, the Missouri Center for Health Statistics also provides population estimates for such other variables as race, marital status and unusual age groups. The center also produces occasional population projections.

PUBLICATIONS AVAILABLE:

Publication Number	Report Title and Summary	Date	Publication Cost
8.18	**Missouri Population Estimates 1990–1996** This report provides estimates for Missouri counties by age and gender for the years 1990–1996. The estimates are controlled to the county total estimates of the Bureau of the Census. Issued yearly, this publication revises the population estimates of the previous report based upon revised Bureau of the Census estimates and adds the current year provisional estimates.	October 1997	$15.00

FEE FOR DATA:

Population estimates contained in *Missouri Population Estimates 1990–1996* can also be obtained in spreadsheet form for $15.00 plus $2.50 postage and handling. The most recent year's estimates are available on a county-by-county basis through the Department of Health Home Page at http://www.health.state.mo.us. The fee for data requiring use of the census tape will include a $21 file access charge, $30 per hour research analyst time and $2.50 postage and handling. Other requests for data are usually filled at no charge or for a minimal fee. State and local health departments, other Missouri state agencies and local government, media/media students and legislators will normally not be charged for special data requests. Fees for extensive requests may be negotiated at the discretion of the center director.

CONTACT FOR DATA, REPORTS OR ADDITIONAL INFORMATION:

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Appendix of Source Documents

Source documents are not available in PDF format. Copies of source documents can be obtained from the contacts listed at the end of each surveillance system description.